Textile World

FEBRUARY, 1960

A McGRAW-HILL PUBLICATION

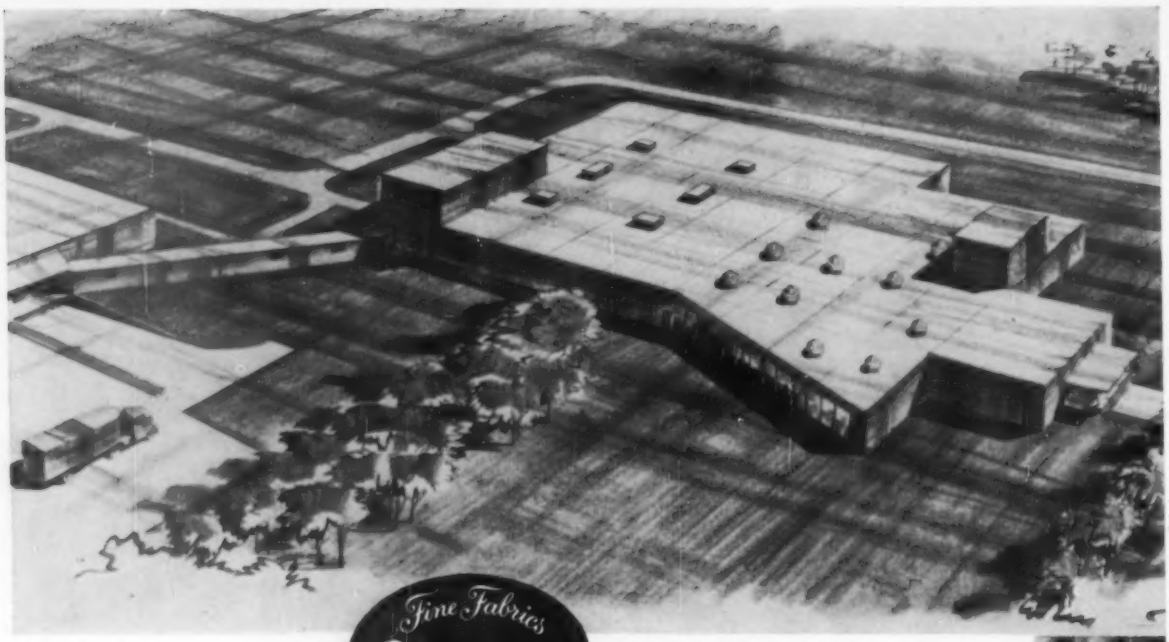
A Guide to MILL BUILDING IN THE '60s

page 62

First of a series—

MILL CHECKUP ... page 49

HOSIERY MILL EXPANDS ... page 50



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This Month in **TEXTILE WORLD** February, 1960

Volume 110, No. 2

BUSINESS

Mill Production Holds at Eight-Months Level ... 3
45% Duty Fails To Halt Wool-Fabric Imports ... 3
Russia Will Get Latest U. S. Equipment ... 4
Japan's Cotton Mills in Switch to Multi-Fibers ... 5
Textile Stocks Drop as Market Wavers ... 5
West Point Mfg. Co. Reports to Employees ... 6
J. P. Stevens Bids for Exposition Cotton Mills ... 7
Tire-Cord Prices Reduced 6% to 9% ... 7
Failures Continue Upward ... 8
Cotton-Imports Problem Awaits March Hearings ... 8
British To Crack Down on Shoddy Textile Goods ... 9
TEXTILE WORLD's Index and Monthly Indicators ... 10

MANAGEMENT AND SUPERVISION

Big Companies Taking Over (Editorial) ... 47
How To Improve Your Interviews. Here are some ideas for increasing your skill in an important area of successful supervision ... 17
Panic Control ... 18
How To Supervise Women. Do you have more trouble with women workers than you do with men? If so, it may be because you try to treat men and women alike. 54

SPECIAL REPORT

A Guide to Mill Building in the '60s. A surge of textile-mill construction is expected in the '60s. For the many mill men facing the need for new plants and expansion of existing plants, the editors of TEXTILE WORLD present the most up-to-date information obtainable on such subjects as the relation between the physical building and manufacturing efficiency; plant selection; building costs; and layout for high production and low manufacturing and maintenance costs ... 62

MANUFACTURING

. . . CARDING

Mill Check-up—1. The Superintendent Inspects Cotton-Mixing Operations. First of a series of articles that show how a good superintendent can walk casually through his mill and almost effortlessly make a rapid and significantly thorough check of every operation ... 49

. . . CARDING & SPINNING

How Woonsocket Controls Yarn Quality and Production. The mill tests all fiber before processing, uses quality checklists at every operation, and maintains rigid standards in all departments ... 60
Mid-South and California Produce Good 1959 Cotton ... 61

. . . SPINNING

Four Ways To Measure Cotton-Yarn Strength. Here are the pros and cons of some accepted methods of testing yarn strength ... 52

. . . WEAVING

Two Revamped Cloth Rooms Reduce Mill Seconds. Another important phase of Arkwright Mills' improvement program is electronic controls ... 56

. . . KNITTING

Dyehouse Is Latest Addition in Knitting Mill's Expansion. The new building is Villa Rica Hosiery's fifth major addition in an eight-year program that has doubled manufacturing and office space ... 50

. . . QUALITY CONTROL

Easy Way To Control Variation in Twister Tension. Here's a simple method, outlined in six easy steps, to find tension limits for twisters ... 58

Please turn the page

CHEMICAL TREATMENT AND FINISHING

Section Contents Page 73
Textile Chemicals 75
New Dyes and Chemicals 78
USF-Aspinook Turns Loss Into Profit 81
Preparation and Bleaching—9. The Continuous Systems 89
Control Is Key to Success in This Finishing Operation 92
How Vulcan Produces Coated Fabrics 101
How To Remove Spots on Piece Goods 105
How We Check Vat Colors for Bleeding During Bleaching 109

DEPARTMENTS

. . . MANAGEMENT
Editorial 47
Pointers for Supervisors 17
Textile Business 3

. . . TECHNICAL
Kinks & Short-Cuts 121
Mill Maintenance 149
Questions & Answers 113
Textile Chemicals 75

. . . NEW PRODUCTS
Equipment & Supply News 131
Fibers, Yarns, Fabrics 117
New Dyes and Chemicals 78
New Literature 150

. . NEWS
News About Men 165
News About Mills 4
News About Suppliers 162
Obituary 167

. . . GENERAL
Calendar 20
Reader Service 175
Advertisers' Index 174

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Textile World

FEBRUARY • 1960

Press time . . .

Burlington, Lees Plan To Merge

Burlington Industries, Inc., and James Lees and Sons Co. announced Jan. 26 that their directors had approved a plan to merge the two companies.

If the plan is approved by Lees shareholders, the Lees operation will continue under its present name as a wholly owned subsidiary of Burlington; and James L. Eastwick, Lees president, will be principal executive officer of the subsidiary.

Under the plan, Lees common stockholders would receive 2 1/3 shares of Burlington common stock for each share of Lees common stock held and the outstanding shares of Lees preferred stock would be redeemed.

Mill Production Holds At Eight-Months Level

Mill production held steady last month within the narrow range of up-and-down fluctuation that set in last summer. For the eighth consecutive month, the production level, shown by TEXTILE WORLD's Index Chart on p. 10, remained within the 116 to 119 range hit last June.

That's a fluctuation of about 2.5% and is unusually stable for the turn of the year. And remaining so steady for eight months at any time is a remarkable feat in the textile industry.

•

Other measurements showed some improvement over the comparable period a month ago.

• **Mill sales rose** from an annual rate of $14.3-billion in the Previous Month listed on p. 10 to a rate of $14.5-billion in the Latest Month.

• **Inventories** dropped from $2,536-million in the Previous Month to $2,500-million in the Latest Month.

• **Inventories-to-sales ratio** dropped from 2.12 in the Previous Month to 2.06 in the Latest Month.

These are all minor changes and do not carry a great deal of significance. Their greatest meaning lies in the fact that they are holding so steady and at such a high level.

45% Duty Fails To Halt Wool-Fabric Imports

Wool-fabric imports hit a new pattern in the closing months of 1959, according to figures released by the National Association of Wool Manufacturers. For the first time since the present Geneva Reservation 25%-45% duty arrangement went into effect in the last quarter of 1956, imports rose significantly in the fourth quarter.

Imports were reported up 194% in October over October 1958 and 175% in November over November 1958. An increase of about 34% in 1959 over 1958 was expected. That would bring the 1959 total to about 21.5-million lbs., compared to 16.0-million lbs. in 1958.

•

The greatest significance of this increase is the growing ineffectiveness of the present tariff arrangement.

In the early months of the year, imports come in at a 25% duty. This duty rises to 45% when the volume of imports reaches 5% of U. S. production for the last three years.

Until 1959, the rise to 45% duty was moderately successful in slowing down imports in the latter part of the year.

In 1958, the break-point at which duty went from 25% to 45% was 14.2-million lbs. In the first six months of 1958, imports amounted to 13.15-million lbs., about 850,000 lbs. short of the

NEWS ABOUT MILLS

American Thread Co., New York, N. Y., is discontinuing operations at its spinning mill in Troutman, N. C. The mill has been sold to Troutman Shirt Co. The work at the Troutman mill will be absorbed by the company's other mills.

•

Berkshire Hathaway, Inc., New Bedford, Mass., has placed contracts amounting to about $4-million for machinery replacements and improvements.

•

Cadillac Textiles, Inc., Valley Fall, R. I., has formed separate divisions for its gray-goods and finished-goods operations.

•

Clarkesville Mills, Clarkesville, Ga., will build an addition to provide more weave-room facilities.

•

Collins & Aikman Corp., New York, N .Y., is completing installation of new spinning machinery at Norwood, N. C., at a cost of $2-million. The plant will be able to handle long-staple fiber (mohair and fine and coarse wools) and will be able to increase its production of quarter-blood yarns. New machinery is also being installed to improve the quality and production of short-staple man-made-fiber yarns and blends as well as carpet yarns. The company also sold its Plant "K," a worsted spinning plant, in West Barrington, R. I., to Barrington Worsted, Inc., a newly formed corporation. Both moves are part of a plan to consolidate yarn-spinning operations and expand spinning facilities.

•

Crown Yarn Dye Co., Inc., South Attleboro, Mass., is building a 10,000-sq.-ft. addition. Winding capacity and storage space will be increased.

•

Dan River Mills, Inc., Danville, Va., has announced steps to further expand its activities in the sportswear-fabric field. New personnel has been added to the styling staff.

25% quota. In the last six months of 1958, imports amounted to 2.99-million lbs.

That gave a total of slightly less than 2-million lbs. entering at 45% duty in the 12 months of 1958.

But the 45% duty was not very effective in 1959.

The break-point last year was 13.5-million lbs. That volume was filled in less than four months, almost by the time the quota was announced by Pres. Eisenhower in April.

In the first six months of 1959, imports amounted to 16.0-million lbs., 2.5-million over the 13.5-million-lb. 25%-duty quota If the final 1959 count does show a last-six-months volume of 5.5-million lbs., as expected last month, that will be about 8-million lbs. that came in under the 45% duty—over half as much as the whole 25%-duty quota.

•

What happens now is still up in the air.

The 45% duty automatically dropped back to 25% at the end of calendar 1959 and presumably will remain there until a new break-point is announced when U. S. production figures are tabulated.

Hearings were held in December by the Tariff Commission and the Committee for Reciprocity Information on the desirability of renegotiating duties. If the Committee finds that present tariffs are below the peril point, it will investigate and make corrective recommendations to the president.

Importers are strongly opposed to any increase, even to a continuance of the present curbs. Even they point out that the rise to 45% duty is not effective in really controlling imports and winds up being only an inflationary factor.

U. S. wool men agree, and the 1959 record is expected to show, that the present system is not working as it was intended to work. But they want effective curbs initiated, not a removal of all efforts at curbs.

Russia Will Get Latest U. S. Equipment

Russia will get some of the latest U. S. textile equipment in the $20-million deal announced late in December.

The new mill, to be built at Kalinin, near Moscow, will have 50,000 spindles and will spin, weave, and finish cottons, worsteds, man-made-fiber fabrics, and blends.

Announcements last month of types of equipment to be supplied by some of the principal U. S. machinery manufacturers included:

- **Crompton & Knowles** will supply 630 W-3 looms at a price in excess of $4-million.
- **Saco-Lowell** will provide more than $3-million worth of Versa-Matic drawing frames, S. J. spinning frames with MagneDraft, and its new worsted frames.
- **Whitin Machine Works** will supply 20,000 American System worsted spindles.
- **Rodney Hunt** will supply a continuous peroxide-bleaching range.

Japan's Cotton Mills In Switch to Multi-Fibers

TOKYO—A drastic change is about to take place in the Japanese cotton-spinning field. The development of an almost endless series of man-made fibers is forcing mills to equip for running a variety of fibers rather than cotton only.

Observers attribute the switch to the following reasons:

• Liberalization of import of raw cotton and raw wool will result in steeper competition and less profit for cotton spinners.

• Further diversification of lines to weather future recessions is now more necessary than ever.

• The increasing popularity with consumers of textiles made of man-made fibers is forcing the switch.

Textile Stocks Drop As Market Wavers

Most textile stocks have not performed well since the stock market began its wavering last year.

At mid-January, the 16 textile stocks listed on the New York Stock Exchange that TEXTILE WORLD uses to gauge the interest in textile stocks averaged 20.0% below their 1959-60 highs, compared to only 2.5% below for the Dow-Jones Industrials Average.

Until the wavering began after mid-1959, the textile group had performed much better than the D-JI Average. But from mid-May 1959, the last time the stocks were reported on here, until last month, the textile group dropped 4.3%, compared to a rise of 6.4% by the D-JI Average.

•

Here's how the 16 issues changed in the eight-months period:

	May 1959	Jan. 1960	Change
Am. Enka	36	31	—13.9 (%)
Am. Viscose	47	40	—14.9
Beaunit	22	20	— 9.1
Bigelow-Sanford	15	19	+26.6
Burlington	18	23	+27.8
Cannon	65	58	—10.7
Celanese	34	30	—11.7
Cone	15	17	—13.3
Duplan	11	13	+18.2
Jas. Lees	50	49	— 2.0
Mohasco	16	14	—12.5
Mojud	14	13	— 7.1
Reeves	18	27	+50.0
J. P. Stevens	30	31	+ 3.3
United Merch.	20	18	—10.0
Van Raalte	35	34	— 2.8
Avg.	27.87	26.68	— 4.3%
D-J Ind. Avg.	620	660	+ 6.4%

Eleven issues were down and only five were up.

Emple Knitting Mills, Bangor, Me., will build a one-story brick building and install new machines and equipment as part of an expansion program.

•

Fairlane Knitting Mills, Gastonia, N. C., has been bought by Saul Mandel. Mr. Mandel will manage the mill and will install new equipment.

•

Farmac Mills, Inc., Rock Hill, S. C., has changed its name to Randolph Yarns, Inc.

•

Farrington Texel Corp., Walpole, Mass., will be provided with additional capacity with its parent company's (Farrington Mfg. Co.) purchase of the Coated Fabrics Div. of Sawyer-Tower, Inc., Watertown, Mass. The Sawyer-Tower division manufactures vinyl-coated fabrics for the aircraft and missile industries.

•

Firth Carpet Co., New York, N. Y., has sold a one-story, 60,000-sq.-ft. plant in Newburgh, N. H., for $150,000 to Max Samuelson of Newburgh.

•

Fulton Cotton Mills, Atlanta, Ga., has bought Ainsworth-Precision Castings Co., a division of Harsco Corp., Harrisburgh, Pa. The sale includes the operations and all assets of the company's seven plants. Ainsworth-Precision is a producer of die castings, stampings, and machine parts for the automotive, furniture, appliance, camera, and electronic industries.

•

Glen Woolen Mills, Inc., Norwich, Conn., has been bought by W. S. Hill Associates, of Norwich.

•

F. C. Huyck & Sons, Rensselaer, N. Y., has changed its name to Huyck Corp.

•

Kayser-Roth Hosiery Co., Graham, N. C., has bought Nu-Vogue Hosiery Mill in Graham.

•

John P. King Mfg. Co., Augusta, Ga., has bought 270 acres in McCormick County, S. C., as a site for a textile plant.

•

Millburn Mills, Inc., West War-

wick, R. I., is planning to buy a former man-made-fiber-yarn mill owned by Durham Hosiery Mills, Durham, N. C. The company will build a 210,000-sq.-ft. addition to the mill and will use the mill as a dyeing and finishing plant.

•

Modern Tufting Co., Dalton, Ga., has completed its new expansion and modernization program. A new 15-ft. individual needle-control tufting machine has been installed and is in operation.

•

Monarch Knitting Co. Ltd., Dunnville, Ont., has merged with another Canadian textile firm, C. Turnbull Ltd., Galt, Ont. Turnbull produces underwear at a plant in Riviere-du-Loup, Que., and makes knitting machinery at Galt.

•

Morganton Full Fashioned Hosiery Co., Morganton, N. C., has changed its name to Morganton Hosiery Mills, Inc. It now manufactures both seamless and full-fashioned hosiery.

•

Natona Mills, Inc., Dallas, Pa., is expanding the facilities of its nylon-tricot department at a cost of more than $250,000. The program will not require any structural addition to the plant. When work is completed, 25 people will be added to the present staff of 275.

•

Oneita Knitting Mills, New York, N. Y., and Andrews, S. C., is building a new addition to its plant in Andrews. The new addition will house the company's 100-machine circular-knitting mill now located across town and a bleachery and dyehouse for circular-knitted cotton fabrics. The new 24,000-sq.-ft. addition with equipment will cost about $450,000 to $500,000 when completed.

•

Pearce Woolen Mills, Latrobe, Pa., will discontinue operations about April 1, with the Pearce line of blankets continuing to be manufactured at Woolrich, Pa., as a division of Woolrich Woolen Mills.

In May of last year, six of the 16 issues—American Enka, Burlington, Celanese, James Lees, Mohasco, and Reeves—had risen 100% or more from the 1958 recession low.

By last month, only two of the six still held some additional gain made in the eight-months period. Burlington at 23 was 27.8% above its May point and Reeves at 27 was 50% above.

•

But 15 of the 16 issues were below their 1959-60 highs and had lost at least twice as much as the D-JI Average.

Here's how they compared with their highs:

	1959-60 high	Jan. 1960	Change
Am. Enka	46	31	—32.6 (%)
Am. Viscose	55	40	—27.2
Beaunit	30	20	—33.3
Bigelow-Sanford	19	19	0
Burlington	26	23	—11.5
Cannon	69	58	—15.9
Celanese	34	30	—11.7
Cone	20	17	—15.0
Duplan	14	13	— 7.1
Jas. Lees	55	49	—10.9
Mohasco	18	14	—22.2
Mojud	16	13	—18.7
Reeves	41	27	—34.1
J. P. Stevens	34	31	— 8.8
United Merch.	21	18	—14.3
Van Raalte	36	34	— 5.5
Avg.	33.37	26.68	—20.0%
D-J Ind. Avg.	677	660	— 2.5%

•

But textile stocks have not lost their attraction for many investors. Several broker analysts are still recommending them on the basis that—

• The drop they have already sustained adequately offsets any tapering off of production that may occur in 1960, and

• The present level of mill profits, much improved over a year ago, is almost certain to hold through most, if not all, of 1960.

West Point Mfg. Co. Reports to Employees

West Point Mfg. Co. last month gave its employees a vivid report on the company's 1959 business.

In "The President's Report to Employees," published in the company's house organ, *The Westpointer*, J. L. Lanier, president, broke down the sources of income and the expenditures of the company during the fiscal year.

In a section entitled "Where Each Dollar of Revenue Came From," the report listed:

Sales of industrial fabrics	49.1¢
Sales of apparel fabrics	26.9
Sales of household fabrics	23.2

Other income	0.8
	100.0¢

In a section entitled "Where Each Dollar Was Spent," the report listed:

Raw materials	47.5¢
Salaries, wages, benefits	28.9
Supplies, repairs, maintenance	4.3
Depreciation, amortization	2.2
Other operating expenses	10.7
Taxes on income	4.1
Reinvested in the business	2.1
Dividends to stockholders	2.0
	100.0¢

J. P. Stevens Bids for Exposition Cotton Mills

J. P. Stevens & Co. made a bid last month for Exposition Cotton Mills, Atlanta, in a stock and cash arrangement.

Capitalized at $3,256,000, Exposition manufactures gray sheetings, twills, drills, sateens, corduroys, and specialty fabrics.

Details of the financial arrangement were not given; but the acquisition will bring Stevens an additional 1,250 employees, 320 cards, 57,356 spinning spindles and 1,472 looms. It will raise Steven's total number of plants to 45 and its cotton mills to 18.

Second only to Burlington Industries in size as a U. S. textile company, Steven's sales in fiscal 1959 amounted to $459,428,608, up 19% from the $386,330,770 sales in fiscal 1958.

Net income before taxes was $25,809,382, up 128% over the $11,385,310 net before taxes in 1958. But net after taxes, because of a tax credit in 1958, was up only 71%—$18,709,382 in 1959, equal to $4.51 a share, compared to $10,935,310, equal to $2.60 a share in 1958.

Dividends in 1959 amounted to $1.50, a 4.8% return on the recent market price of $31 a share.

Tire-Cord Prices Reduced 6% to 9%

The nylon vs. rayon scrap for the tire-cord market tightened just before the turn of the year as fiber producers knocked down their prices.

American Viscose and Industrial Rayon lowered the prices of 1,100- and 1,650-den. Tyrex cord 5¢ a lb., to 57¢ and 50¢.

DuPont, Chemstrand, and Allied Chemical dropped prices on 720-, 840-, and 1,680-den. nylon cord 5¢, 9¢ and 6¢ respectively.

The cuts left the difference in price about the same for passenger-car cords, with the 1,100-den. rayon knocked down 8% and the 840-den. nylon 8.5%. But rayon's bid for truck tires was stronger. The price of the 1,650-den. truck-tire cord was reduced 9%, while the 1,680-den. nylon was cut only 6%.

Pellon Corp., New York, N. Y., is expanding its nonwoven-fabric plant in New Bedford, Mass. Production space will be increased by 25,000 sq. ft.

•

Randolph Mills, Concord, N. C., is adding 1,000 sq. ft. to one end of the plant in order to relieve crowded conditions.

•

Reeves Bros., Inc., is reopening its Grace plant near Rutherfordton and will produce plastic-coated fabrics. The plant will operate as part of Reeves' Vulcan Rubber Products Div.

•

Sackville Mills, Shelby, N. C., is a newly chartered textile-manufacturing company. Officers are R. H. Sack, president; Mattie Wolf Kramer, vice president; and Edward Cantor, secretary and treasurer.

•

Schoolhouse Textiles and Kra-Tex Fabrics, Inc., Wilkes-Barre, Pa., has moved to Ashley, Pa. They are occupying a 30,000-sq.-ft. area and are enlarging their manufacturing operations with the addition of automatic looms and throwing equipment.

•

Slater Bros., Inc., Paterson, N. J., is planning to build an addition to its plant in King's Mountain, N. C., to house the dyeing and finishing operations. New equipment and equipment now used at the Paterson, N. J., plant will be installed.

•

Texas Textile Mills, Inc., Waco, Tex., is merging with its McKinney plant.

•

Vanity Fair Mills, Reading, Pa., is expanding Marengo Mills in Demopolis, Ala., by adding about 18,000 sq. ft. of floor space.

•

Wellington Mill, Div. of West Point Mfg. Co., Anderson, S. C., is building a 21,000-sq.-ft. addition. The new program, including the building and the machinery, will cost about $700,000.

•

West Point Mfg. Co., West Point, Ga., has bought one line of the nonwoven equipment of Callaway Mills Co., LaGrange, Ga. The equipment is being installed in West Point's Lantuck Div.

Fred Whitaker Co., Philadelphia, Pa., is building a commission wool-scouring plant in Allendale, N. C. It will be a wholly owned subsidiary and will be known as the Allendale Wool Scouring Co.

WORLD BRIEFS . . .

Russia To Build Mill In Iraq Cotton Area

BEIRUT—Soviet experts delegated to the Iraqi Ministry of Industry have selected Kut, in the heart of the cotton-growing region of Iraq, as the site for a new cotton mill. Power will be supplied by the Baghdad Central Power System.

The Soviets will erect, equip, and operate the plant until Iraqis are sufficiently trained to take over operation. Repayment to Russia will begin after the mill is in production.

•

Canadian Mills Improve But Market Dwindles

MONTREAL—Canadian mills have spent an average of $10,000 per present employee on capital improvements since 1946, according to a report released last month by the Primate Textiles Institute.

At the end of 1959, Canada had over 700 mills employing 75,000 people. Capital expenditures since 1946 amounted to $750-million.

But the share of the Canadian market that is met by Canada's mills is steadily decreasing. From an average of 71% of the total in the period 1935-1939 and 66% in 1950, Canadian mills' share of the market was down to 49% in 1958 and 46% in 1959.

•

Cuba's Largest Mill Confiscated by Government

HAVANA—The largest textile mill in Cuba was confiscated late in December by Fidel Castro's government.

Failures Continue Upward

Twice as many mills failed in December 1959 as in December 1958 and liabilities more than doubled. From four failures with liabilities of $420,000 in the 1958 month, they rose to eight failures with liabilities of $1,012,000 in the 1959 month, Dun & Bradstreet reports.

For the 12 months of 1959, both failures and liabilities were under the previous year. Failures amounted to 69 and liabilities to $7,338,000, compared to 92 failures and $9,019,000 liabilities in 1958.

But both failures and liabilities rose in the last two months of 1959. In November and December combined, there were 20 failures with liabilities of $1,794,000, compared to seven failures with liabilities of $714,000 in November and December of 1958.

Cotton-Imports Problem Awaits March Hearings

The battle over imports of cotton goods into the U. S. came to rest last month.

Hong Kong, the main worry of U. S. mills and garment manufacturers now, reluctantly proposed voluntary quotas late in December. The U. S. in effect rejected them. And there the matter rested, pending hearings next month by the Tariff Commission on a plea by the National Cotton Council that imports are undermining the U. S. cotton-export program.

Here's how things stood as this report went to press—

HONG KONG

Conflicting Interests Scrap Over Quotas

The "rebel" group of garment manufacturers that submitted proposals for voluntary ceilings on garment exports to the U. S. is getting strong opposition from other Hong Kong textile interests.

The garment-manufacturers association recently formed by the "rebels" represents about 85% of Hong Kong's exports of woven cotton garments to the U. S. The program they submitted in effect fixed exports to the U. S. at about the 1959 volume. If it had been accepted, it would have caused no hardship on the group; it would only have prevented further increases of exports.

But the opposition interests, supported by the powerful Chinese manufacturers association and the Hong Kong garment-manufacturers union, oppose the whole principle of quotas. They fear that a quota to the U. S. will cause other countries to jump on the quota bandwagon.

Since the U. S. rejection of the quota proposals and its request for changes, the whole tug-of-war has more or less marked time. One thing about the proposals that U. S. mills did not like was the fact that they covered only made-up garments and did not con-

cern cloth exports. With the major forces of Hong Kong aligned against quotas of any kind, there's almost no chance that the rebel group can agree on terms acceptable to the U. S.

WASHINGTON

Hong Kong Agreement Not Likely Before Hearings

U. S. government officials last month held slim hope that any reasonable compromise between Hong Kong and U. S. textile interests could be reached ahead of the Tariff Commission hearings next month.

Asst. Secy. of Commerce for International Affairs Henry Kearns told TEXTILE WORLD that the position taken by U. S. mills when the Hong Kong proposals were received leaves the door open for more talks with Hong Kong producers.

But the next move was clearly up to Hong Kong, and no new proposals seemed to be developing.

The spotlight is now on next month's hearings by the Tariff Commission.

Last July, the National Cotton Council appealed to Agriculture Secretary Benson to invoke Section 22 of the Agricultural Adjustment Act to curb cotton-goods imports on the grounds that they are damaging the U. S.'s cotton-export program by reducing the amount of cotton used by domestic mills.

In November, President Eisenhower asked the Tariff Commission "to determine whether a fee equivalent to" the 8¢-a-lb. subsidy on export cotton should be charged on cotton-goods imports to protect the cotton program.

Public hearings by the Commission are scheduled to begin March 1.

British To Crack Down On Shoddy Textile Goods

LONDON—The Board of Trade announced last month that the Committee on Consumer Protection will crack down on shoddy textile goods.

Chairman of the committee, J. T. Molony, said, "Among the subjects at which we may need to look are the construction, wearing quality, shrink-resistance, and colorfastness of textiles, particularly clothing, curtain fabrics, and upholstery materials; the adequacy of washing or cleaning instructions with clothing and textiles; and the performance and reliability of equipment and appliances used in the home.

"We hope to be able to identify in broad terms the classes of goods among which consumers appear to find shoddy, defective, or unsuitable products to be particularly prevalent and to see in these cases what kind of weakness lies at the root of the trouble."

The committee was set up last year to protect the shopper from unsafe, shoddy, or inefficient goods and has almost completed its study of safety standards.

Officially, the mill was "intervened" by the Ministry for the Recovery of Stolen Properties, but intervention is tantamount to confiscation.

The mill, Textilera Ariguanabo, at Bauta, 30 miles west of Havana, was founded 30 years ago by Dayton Hedges, from Long Island, N. Y. Until the confiscation, it was owned by Hedge's two sons, Burke and James, naturalized citizens of Cuba.

The Hedges are accused of evading more than $5-million in taxes during the Batista regime and of receiving favors from Batista.

The mill employed 3,300 people and was valued at $26- to $28-million.

•

Japan's Machine Industry In Strong Comeback

TOKYO—Japan's textile-machinery industry is back on the road to recovery after a three-year slump.

The Nagoya International Trade and Industry Bureau said current production in Central Japan, the main center of the industry, is running at a monthly rate of $4.3-million, more than 50% better than a year ago. Manufacturers who had been operating on a hand-to-mouth basis now have order backlogs of six months or more.

The pickup is credited to the revival of the textile industry, the need to replace obsolete machinery, and mounting exports, especially to Southeast Asia.

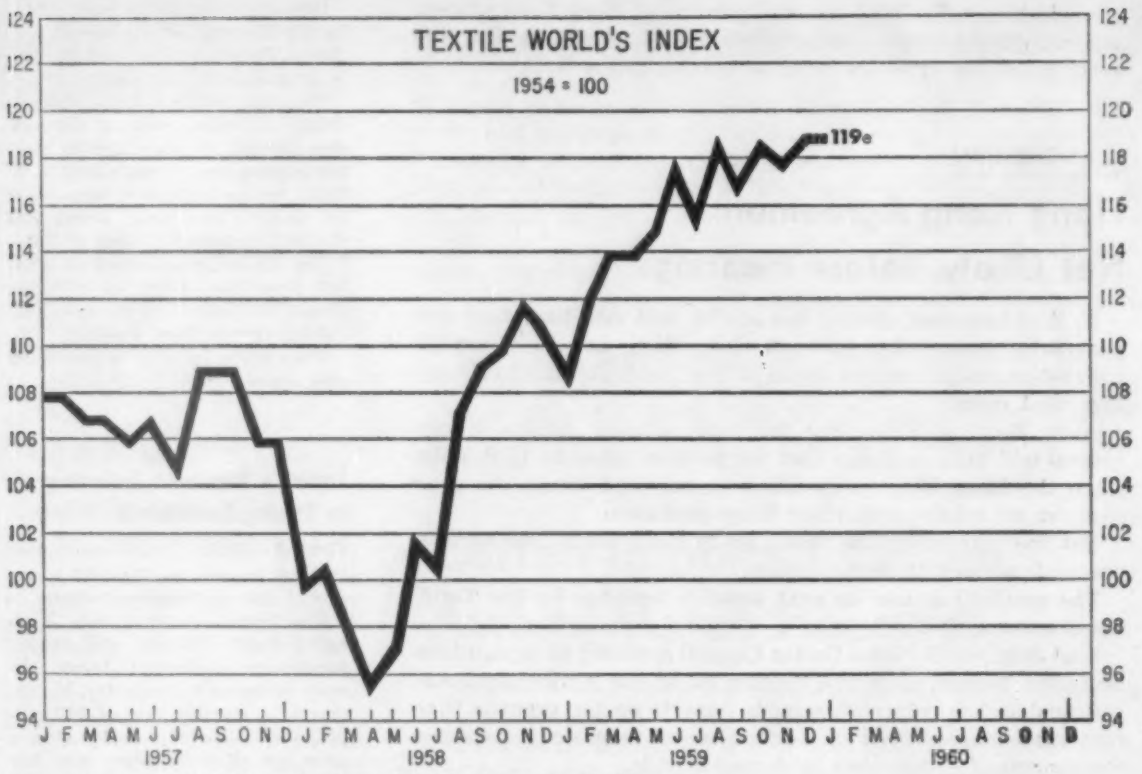
Japan exported $815,541,000 worth of textiles to all countries during the January-October period of this year, compared with $755,316,000 during the same period last year.

•

Czechs Plan Expansion In Textile Machinery

VIENNA — Czechoslovakia's State Chamber of Commerce announced that during the next five years 200-million Czech crowns ($28,571,000) will be invested in works for manufacturing textile machinery. In addition to specialized shops for the production of gearwheels and component parts made of plastics, whole new factories will also be built.

At Tyniste, on the Orlice river, a new factory will be built during the present Five Year Plan for the production of looms; and during the next three years, another factory for the production of knitting machines, forming part of the West Moravian Engineering Works in Trebic, will be built.



Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Previous Month	Year Ago
Textile World's Index (1954=100)	**119***	**119**	**109**
Employment (thousands) B.L.S.	963.3	968.2	978.5
Production Workers (thousands) B.L.S.	870.0	874.4	885.3
Weekly Earnings B.L.S.	$65.03	$64.55	$61.10
Hourly Earnings B.L.S.	$1.59	$1.59	$1.52
Weekly Hours Worked B.L.S.	40.9	40.6	41.2
Production Index (1947-49=100) F.R.B.	114.6	117.7	109.6
Wholesale Price Index (1947-49=100) B.L.S.	96.3	95.9	93.1
Manufacturers' Sales (million $) Commerce	1,214**	1,197	1,102
Manufacturers' Inventories (million $) Commerce	2,500**	2,536	2,456
Inventories-to-Sales Ratio	2.06**	2.12	2.23
Exports (million $) Commerce	138.9**	108.1	96.8
Imports (million $) Commerce	92.1**	99.7	74.5
Stock Price Index (1941-43=10) Standard & Poor's	32.06	32.16	26.04
Failures (number) Dun & Bradstreet	8	12	4

National Economic Indicators

	Latest Month	Previous Month	Year Ago
Industrial Production (1947-49=100) F. R. B.	165	156	151
Consumer Price Index (1947-49=100) B.L.S.	125.7	125.6	123.7
Wholesale Price Index (1947-49=100) B.L.S.	118.9	119.1	119.2
Population (millions) Census	176.5	176.3	172.7
Unemployment (millions) Census	3.6	3.7	4.1
Employment (millions) Census	65.7	65.6	64.0
Personal Income (billion $) Commerce	390.7	386.9	366.9

* Estimate for January. ** November. December is Latest Month in all other cases.

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ROBERTS SPINNING NEWS

PUBLISHED BY ROBERTS COMPANY SANFORD, NORTH CAROLINA

WM-2 SANFORD, NORTH CAROLINA, U. S. A. 1959

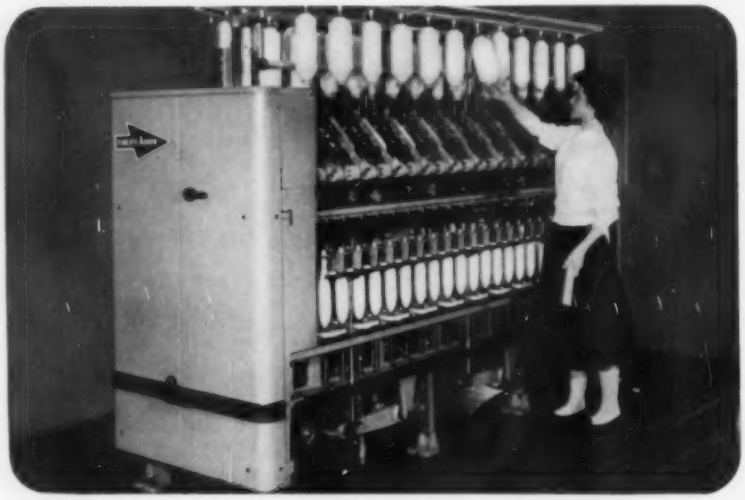
ARROW WM-2 LONG FIBER SPINNING FRAMES OFFER WIDEST YARN MAKING VERSATILITY

A dynamic program of new product design, advanced styling and aggressive merchandising is underway by all segments of the Textile Industry.

Knitting yarns of higher quality and greater interest are being called for in worsted, synthetics and blends. Finer weaving yarns up to 2 ply 80's are being called for and a great many blends are currently being explored. The longer fibers are in wide demand and the next few years should see a substantial boom in this field.

The demand for high bulk knitting yarns and the finer weaving yarns plus all of the newer fabric effects being created require fiber lengths from 3 to 8 inches long.

ARROW WM-2 frames are suitable for making yarns in any fiber length from 1½ to 8 inches. They provide great versatility in handling 100% synthetics, blends of synthetics, 100% worsteds and blends of worsted with synthetics in this range. Better quality yarns with greater evenness, bigger package sizes and higher production speeds are produced on ARROW frames.



- Spins yarn from any natural or synthetic fiber or any blend.
- PermaSet Drafting handles any fiber length from 1½ to 8 inches
- No roll setting changes needed at any time
- Great versatility for changing yarn numbers, twist, draft, ring size, and spindle speed
- Drafts as high as 24 on worsted, 60 on synthetic
- Produces yarn with better evenness and greater breaking strength
- Ball bearing top and bottom rolls eliminate all lubrication in drafting zone
- Almost ideal spinning conditions from delivery roll to spindle
- Runs at higher front roll, traveler and spindle speeds
- Reduces ends down by more than 50%
- Puts twice as much yarn on the bobbin as older frames
- 12-inch bobbins reduce winding costs
- Very rugged, most durable machine ever built for yarn spinning
- Frame is built in the wide-stance 36-inch width
- Uses ball bearings at every moving, turning or oscillating motion
- Substantially lowers electric power consumption
- AeroCreel for single or double roving
- Frame arranged for practical application of overhead cleaning and vacuum floor sweeping

Roberts ShortFlo System for Making Long Fiber Yarns

Roberts Company offers complete technical service in adapting its ShortFlo System for the production of long fiber yarns. This includes the complete yarn manufacturing process starting with tow converters, blending machines, pin drafting, roving frames, spinning frames, winders and twisters.

Where mills have existing equipment, full consideration is given to utilizing it whenever possible. Or, if a new long-fiber program is planned, all machinery can be specified, and the complete yarn organization set up.

The ShortFlo System for making long fiber yarns requires a minimum number of processes. Many doublings are provided to insure exceptionally good blending of fibers, improved evenness and better strength.

ROBERTS SPINNING — ARROW M-1

THE FRAME PREFERRED BY SPINNERS

COTTON SYSTEM SPINNING

for carded and combed cotton short and long staple

for synthetics and blends up to 3 inch fiber lengths

yarn numbers from 2's to 120's

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● Longer Ring Life.
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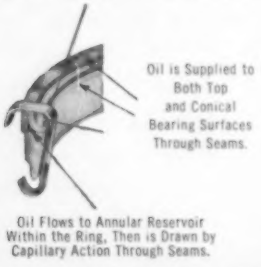
● Reduced Yarn Breakage.

The "M" Type Herr Conical Ring introduces a new, controlled method of lubrication. This outstanding improvement in ring lubrication is called Seam Lubrication — a method that utilizes the principle of capillary attraction. Thoroughly tested for several years in some of the largest textile plants, the "M" type Herr Ring provides more uniform lubrication than has been possible before. There is no oil waste. Every drop of oil is utilized being drawn by capillary attraction through the top and conical seams. There are no wicks that leak oil — no rewicking. The operation is clean. Maintenance costs are lowered. Oil consumption is greatly reduced, yet faster spindle speeds are possible without extra wear to ring or traveler. Write today to get all the facts that make new profits.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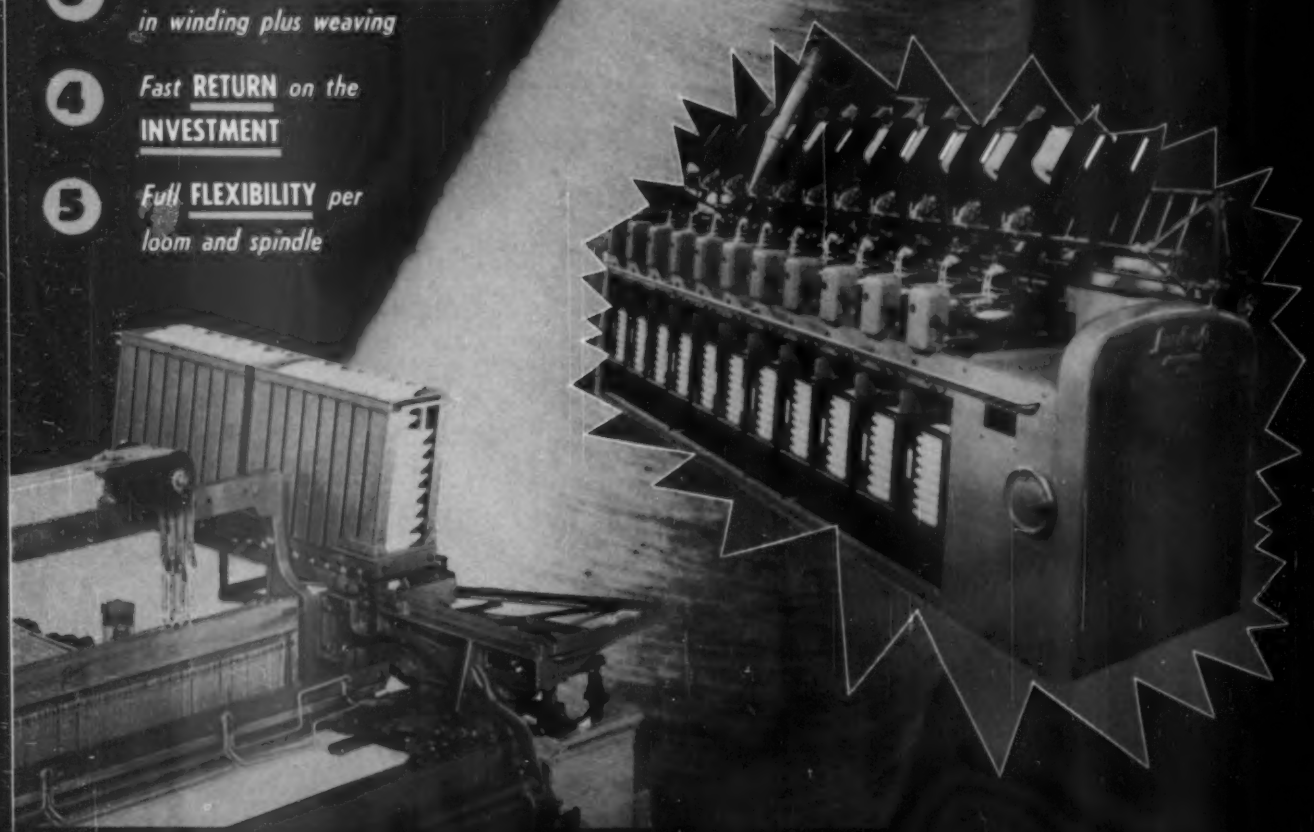

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How To Improve Your Interviews

- Interviewing is too frequently a neglected art, although the ability to interview well to get needed information is an excellent talent for a supervisor to possess.
- Here are some ideas for increasing your skill in an important area of successful supervision.

By M. A. CROSS, Director of Industrial Relations, Dan River Mills, Inc.

Many supervisors think of interviewing as something somebody else generally does and as a function they themselves have to do only on occasion. Too often we conceive of interviewing as a process by which personnel or employment men select applicants for employment and thus as somewhat removed from our own areas of responsibility.

This view is limited and mistaken. Let me illustrate.

An attendance record tells you who is absent; it does not tell you why. A quality report reveals your seconds have increased; it does not necessarily explain adequately what caused the trouble. A production report shows if production has fallen off; it does not show why.

Therefore, to supplement the information that flows to you, you go to employees to find additional facts; and this fact-finding, in the broader sense, is an interviewing process. Certainly the ability to interview well in a variety of situations where complete information is required is an excellent talent for a supervisor to possess.

It is not a talent most of us have naturally, but it can be sharpened by practice and experience. Here are a few suggestions that may improve your performance.

1. Let the other guy do the talking

By definition, to interview is to question or converse, especially to obtain information. In an interview with an employee, the purpose is to gain information he can provide that will help you in your work, guide you in reaching a sound decision, or perhaps be useful to you in instructing and coaching the employee. You can hardly expect to secure information if you do most of the talking; so encourage the employee to talk, and recognize that considerable groping may be necessary to pin down the facts you are seeking.

Sometimes silence can be golden. It is difficult for many people to keep quiet when conversation in an interview stops. Silence almost seems to be embarrassing, and seconds seem like minutes.

Yet this may be exactly the wrong time for the interviewer to say anything. The employee may be thinking of what he should say and may have reached the point of discussing what you really want to know when a few ill-chosen words on your part choke him off, perhaps even get him off the hook of something he didn't want to talk about but has resigned himself to saying.

Try the virtue of silence once in a while. After all, there is just as much pressure on the other guy to say something; and your objective is information, not listening to the wisdom of your own words.

2. Ask the right questions

A good industrial psychologist can elicit a tremendous amount of information from another person almost without asking a question. A suggestion here, a comment there, is enough to launch the person being interviewed into a discussion of the subjects about which the psychologist seeks knowledge. Few of us can hope to match this professional ability; so we must depend on asking the right questions.

An example may emphasize this point. Assume you have just received word that a valued employee, an unusually competent loomfixer, is quitting. You want to know why because you can't afford to lose him or others like him. You decide to interview him.

After a few preliminary pleasantries, you ask him why he's leaving and he says "to take a better job." This is a good answer because he knows it is acceptable and noncontroversial and doesn't reflect on the company, his associates, or his supervisors.

But is it the real reason? You probe a little deeper and ask, "When do you start on your new job?" "What kind of job is it?" What company are you going to work for?" "What's the rate of pay?" If he actually has accepted a better job, he will have answers to these questions; but if he hasn't, he is bound to fumble around.

That's your clue to dig deeper, and you discover that he has no "better job." He does have complaints about his working conditions. You accept his complaints as valid, assure him the conditions will be corrected, and end up with his withdrawing his quit notice.

If you had accepted his original answer, that would have ended the matter to your loss. By asking the right

questions, the interview has brought you the information you needed to know, with resultant benefit to the employee and yourself. That suggests a third point.

3. Analyze what is said in an interview

You can't always take what is said at face value. In the case of the loomfixer, he said "better job" because that was the easy way out. It was easier for him to give such a generally acceptable answer than to discuss conditions that would put his co-workers or immediate supervisors in a bad light. It's all right to say he should have been completely candid from the beginning, but it is better sense to recognize that taking the easy way out is a common human trait.

There's another reason why it is necessary to analyze what is said in an interview. In dealing with a superior, we tend to say what we think the boss wants to hear, surely an understandable human trait. Most employees get pretty expert at figuring out what the boss likes to hear, and they hold back the unpleasant information. This habit is not easy to change, but you should keep it in mind in an interview whose purpose is to obtain accurate information.

4. Try not to antagonize

It helps if an interview can be conducted in a friendly atmosphere, with the employee or applicant feeling comfortable and at ease. Obviously, this will not always be possible; but to the extent that emotionalism can be kept out of the discussion, it should certainly be done.

It is also helpful if you can conduct an interview without appearing to form judgments. If you indicate to the employee by words or manner that you don't like what he is saying, he is likely to turn to a more-palatable subject or adopt a defensive attitude or perhaps hold back information you want.

On the other hand, if you indicate satisfaction with what he is saying, he will try to stay on that same track because of the tendency to tell the boss what the boss likes to hear.

In either case, you defeat your own purpose.

One of the best managerial tools a supervisor can have is good, sound information. He can supplement the information that flows to him in regular records and reports by intelligent interviewing of employees. Interviewing is too frequently a neglected art. It is surely an area for self-development for any supervisor who wants to acquire a vital managerial talent.

Humanics — *A TW Brief*

Panic Control

By AUREN URIS, Research Institute of America

Every company and every department faces the possibility of sudden trouble. It may be fire or power failure or a crisis of a completely unexpected kind.

It's well worth while to make "disaster" plans or to think through the application of company plans to special departmental needs. Here are a number of steps that can make the difference between chaos and successful control:

1. Choose a coordinator. There must be one person in complete and absolute charge. In most cases, you're the obvious man. But it may be wise to appoint a second, even a third in command, and brief them on their responsibilities.

2. Make a survey of your department. You have to determine not one but several courses of action.

Here's a list of plant protective services suggested by one safety expert. It's far beyond the needs of the average department. But it includes many things you'll want to consider:

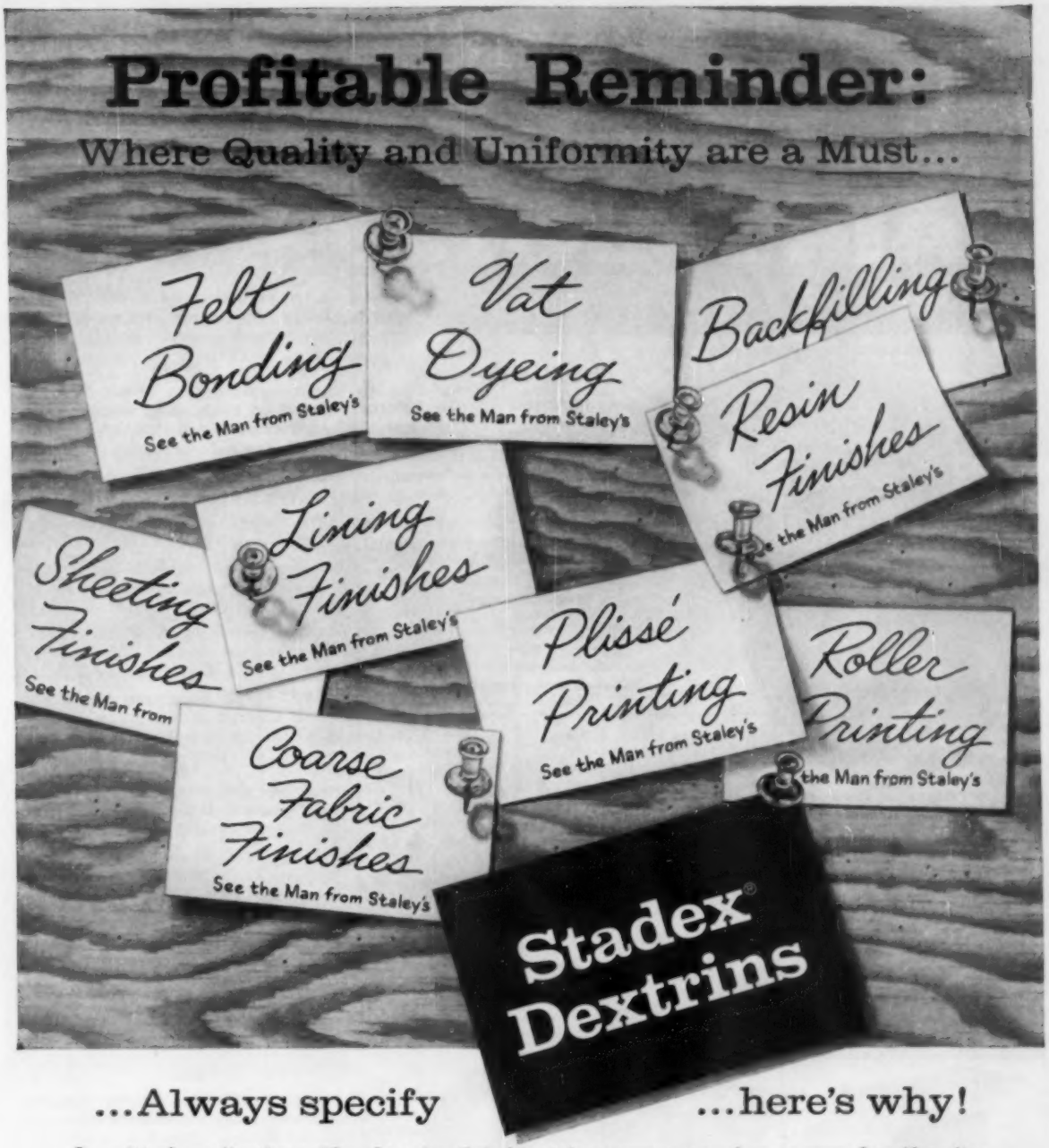
a. Sound alarm, notify others, etc.
b. Direct workers to safety.
c. Rescue trapped persons.
d. Render first aid.
e. Shut off machinery, pipe lines, and so on.
f. Repair damaged water mains and utility lines.
g. Fight fires.
h. Maintain morale.
i. Prevent panic; maintain order and discipline.
j. Remove debris; clean up.
k. Perform necessary welfare duties.
l. Effect emergency repairs so production can be resumed.

Certain hazards are particular threats in some plants and departments. If your shop uses quantities of carbon tetrachloride, for example, the danger of poisonous fumes would require special attention.

3. Select and train people for special assignments. In the course of surveying your department, you'll find out how many people you'll want on "special detail." Of course, you'll make your selection on the same basis you do for any assignment—particular suitability of the individual to the task.

4. Make the plan known to all. You don't want to give your people the feeling they're sitting on a powder keg. You may begin by telling them that what you're doing is probably unnecessary. But by explaining the benefits of preparedness as well as the steps to be followed, you'll have them with you.

Company geography must be taken into consideration. If your department is close to others, you may want to compare notes or actually gear your plans to work with those of fellow supervisors.



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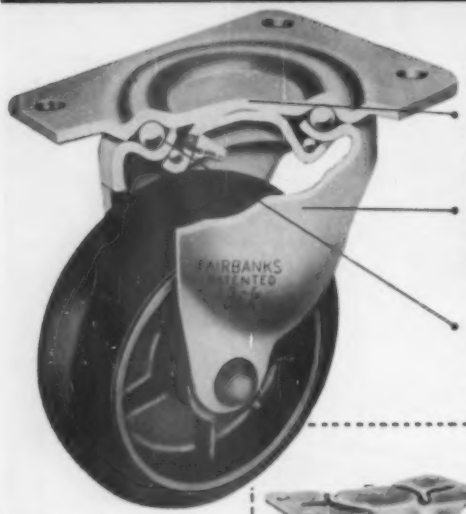

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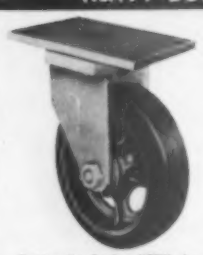
Fairbanks Series "23" double ball race swivel casters, for medium duty, sizes 3" to 8".

Fairbanks Series "33" rigid casters, match Series "23" casters in height, sizes 3" to 8".

Fairbanks Series "21" single ball race swivel casters, for regular duty, sizes 2" to 6". Matching rigid Series "31" casters available.

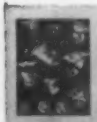
HEAVY DUTY STEEL CASTERS



Fairbanks Series "27" double race swivel casters, for heavy duty, sizes 6", 8" and 10".

Fairbanks Series "37" rigid casters match the Series "27" casters in height, sizes 6", 8" and 10"

Fairbanks Series "500" Vulcanized Rubber Tired Wheels, roller bearing, sizes 3" to 18". Standard of the industry



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CALENDAR

February

Eighth Annual Material Handling Short Course, Georgia Institute of Technology, Atlanta, Ga., Feb. 4 to 6

National Cotton Council, annual meeting, Statler-Hilton Hotel, Dallas, Tex., Feb. 8 & 9

American Society for Quality Control, Textile Div., annual conference, Clemson House, Clemson, S. C., Feb. 18 & 19

March

American Society for Testing Materials, Committee D-13, spring meeting, Sheraton-Atlantic Hotel, New York, N. Y., March 1 to 4.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., March 2

Fiber Society, spring meeting, Roosevelt Hotel, New Orleans, La., March 10 & 11

Southern Textile Methods & Standards Association, spring meeting, Clemson House, Clemson, S. C., March 17 & 18

Textile Quality Control Association, spring technical meeting, Dinkler Plaza Hotel, Atlanta, Ga., March 24 & 25

ASME, Textile Engineering Conference, North Carolina State College, Raleigh, N. C., March 31 & April 1

April

American Cotton Manufacturers Institute, annual meeting, Americana Hotel, Bal Harbour, Miami Beach, Fla., April 7 to 9

Alabama Textile Manufacturers Association, annual meeting, Buena Vista Hotel, Biloxi, Miss., April 20 to 22

National Association of Hosiery Manufacturers, annual meeting, Americana Hotel, Miami Beach, Fla., April 21 to 24

Underwear Institute, annual meeting, Hotel Biltmore, New York, N. Y., April 29

May

Georgia Textile Manufacturers Association, anniversary meeting, Diplomat Hotel and Country Club, Hollywood, Fla., May 19 to 21

American Textile Machinery Exhibition, Atlantic City Auditorium, Atlantic City, N. J., May 23 to 27.

Tufted Textile Manufacturers Association, annual convention, Fountainebleau Hotel, Miami Beach, Fla., May 25 to 28

South Carolina Textile Manufacturers Association, annual meeting, The Cloister, Sea Island, Ga., May 26 to 28

11th Annual Cotton Research Clinic, Grove Park Inn, Asheville, N. C., May 31 to June 2

October

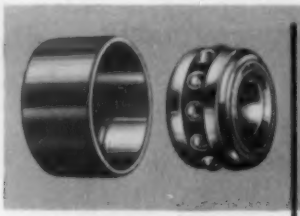
21st Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 3 to 7

PRODUCT INFORMATION

A Complete Line Of Cost-Saving Sealed Ball Bearings For Modern Mill Efficiency!

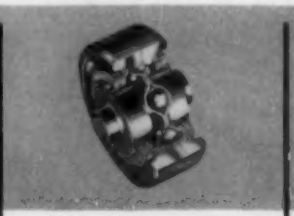
N/D sealed ball bearings offer many production savings for modern textile mill operation. They permit higher speeds and production . . . require less power . . . and reduce maintenance substantially. N/D textile bearings are produced with integral closures to exclude foreign matter as well as protect valuable yarn and goods against damaging oil spatters. Many are lubricated and sealed-for-life. Others use N/D's Injection-Relubrication system, permitting revitalization of bearing lubricant for continued, trouble-free performance.

If you're modernizing, rebuilding, or designing new textile machinery, it will pay you to contact the N/D Sales Engineer in your area. Or, call New Departure Division, General Motors Corporation, Bristol, Connecticut.



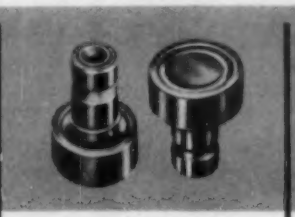
SPINDLE BEARINGS

. . . cylindrical outer race permits removal of spindle from bolster without removing bolster from rail. Used for step bearings as well as in high-speed spindle applications.



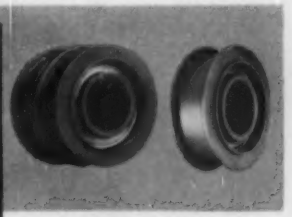
TREADLE ROLL BEARINGS

. . . permanently lubricated for long service. Designed to eliminate sparking. Double seals prevent leakage of lubricant, keep out dirt and lint.



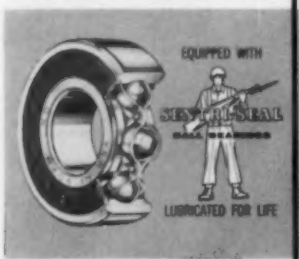
TENSION PULLEY BEARINGS

. . . available for both vertical mounting of idler and tension pulleys . . . or horizontal mounting of tape tension pulleys.



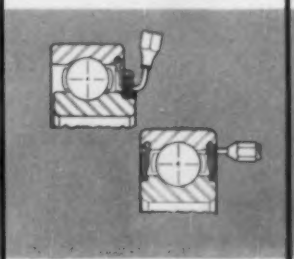
SHEAVE BEARINGS

. . . for automatic looms. Self-sealing assures protection of textiles against splatter, eliminates relubrication problem. Designed to permit nesting in gangs on harness sheave supporting shaft.



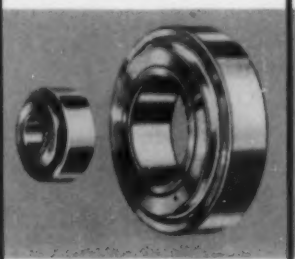
PRECISION BEARINGS WITH SENTRI-SEAL

. . . keep lubrication in, seal out lint, dirt, moisture for life. Seals are synthetic rubber with molded-in spring steel insert. For most ball bearing types and sizes.



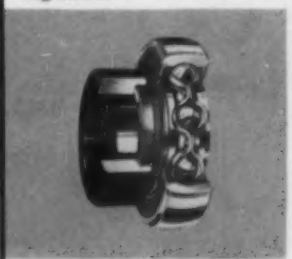
INJECTION-RELUBRICATION SYSTEM

Hollow needle and metering oiler extend grease life in bearings for many months in high-speed, long-service applications.



PRECISION BALL BEARINGS WITH FELT SEAL

. . . annular ball bearings are protected from dirt, retain lubricant by integral felt closures. Complete line from 5mm. to 2¼" bore, relubricated by injection.



ADAPTER BEARINGS

. . . easily applied to shafts; positive lock. Pre-lubricated, sealed. For moderate loads and speeds. Spherical or cylindrical O.D. for shafts ½" to 2⅞" dia.

SEND FOR N/D TEXTILE BALL BEARING CATALOG TEX-1

NEW DEPARTURE
BALL BEARINGS
NOTHING ROLLS LIKE A BALL

First introduced in 1928...

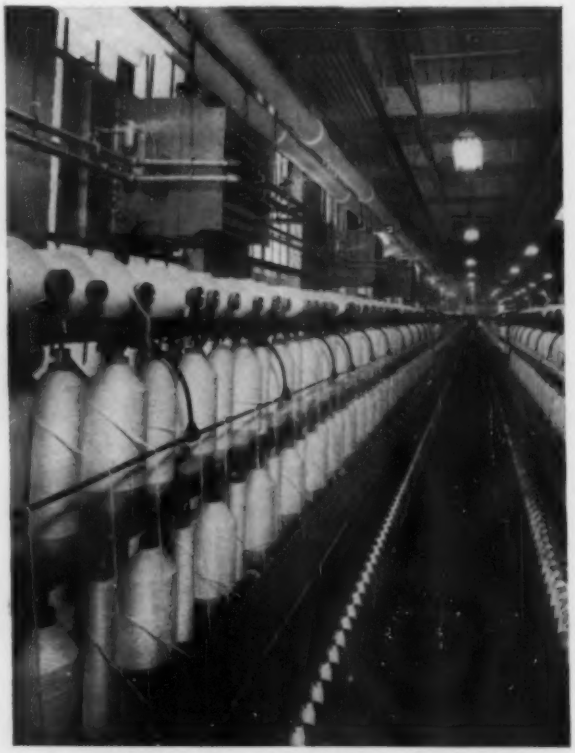
1928 was a banner year! That was the year Cannon Mills Company brought out its now-famous "towel ensemble" . . . announced *colored* hand and bath towels for the first time, as well. It was back in 1928, too, that Cannon also insured *finer* product quality with another innovation . . . AMCO Humidification.

In the 30 years since then, as Cannon has diversified its product line and added new manufacturing facilities, American Moistening Company has continued to work closely with Cannon in the installation of *carefully engineered* Amco Air Conditioning Systems.

Amco, of course, designs all types of systems — humidification; humidification in combination with cooling, as in a ductless evaporative cooling system; unit dry-duct systems; or central station air conditioning.

For expert advice, backed by many years of textile air conditioning experience, let an Amco engineer suggest a solution to *your* particular air conditioning problem. Naturally, there's no obligation.

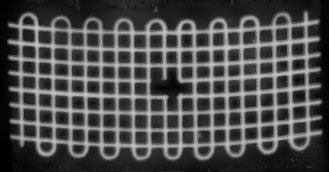
Amco No. 6 Atomizer, one of many quality Amco components, produces an exceptionally fine, smoke-like spray. Its better performance and ease of maintenance make it a superior, automatically self-cleaning atomizer both for new installations and for replacements.



Amco ductless system of humidifying, cooling and ventilating installation in spinning room at Cannon Mills plant in Kannapolis, N. C.

AMCO
SINCE 1888
AIR CONDITIONING EQUIPMENT

AMERICAN MOISTENING COMPANY • CLEVELAND, NORTH CAROLINA
BRANCHES: ATLANTA, GA. • PROVIDENCE, R. I. • TORONTO, ONTARIO



UNIONMATEX

UNIONMATEX

Individual Machines and Complete Installations for the Textile Industry

MANUFACTURING PROGRAM OF **INGOLSTADT:** SPINNING MACHINERY FOR COTTON, WORSTED, ARTIFICIAL AND SYNTHETIC STAPLE FIBRES – **MAK:** CARDS, ETC. – CARDS (SELF-STRIPPING ROLLERS) – MAKE-TOO-SPINNING PREPARATION MACHINES – SPINNING MACHINES – **SCHLAFHORST:** MACHINES FOR THE PACKING INDUSTRY AND THE PRODUCTION OF SPECIAL YARNS – MACHINES FOR WINDING AND CONE REWINDING AT HIGH SPEED (FULL-WIDTH AND SECTIONAL) – **SUCKER:** [illegible] – **THIES:** SPEEDING AND ROVING PLANTS – HIGH-TEMPERATURE DYEING MACHINES FOR CONTINUOUS PLANTS – **ASTRA:** [illegible] – **KLEINEWEFERS:** [illegible] – **MONFORTS:** FINISHING AND CLOTH ROOM MACHINERY FOR ALL KINDS OF FABRICS

UNIONMATEX TEXTILMASCHINEN-UNION GMBH · FRANKFURT AM MAIN-NIEDER MARKEN STRASSE 22 · TELEPHONE (0611) 2581 66 · CABLE: UNIONMATEX · TELEPRINTER 04 11 [illegible]

IBM RAMAC® 305

...3 years of technical progress add greater power and flexibility to this random access data processing system

In September, 1956, we announced the startling new solution to business record-keeping problems . . . the RAMAC 305 Data Processing System!

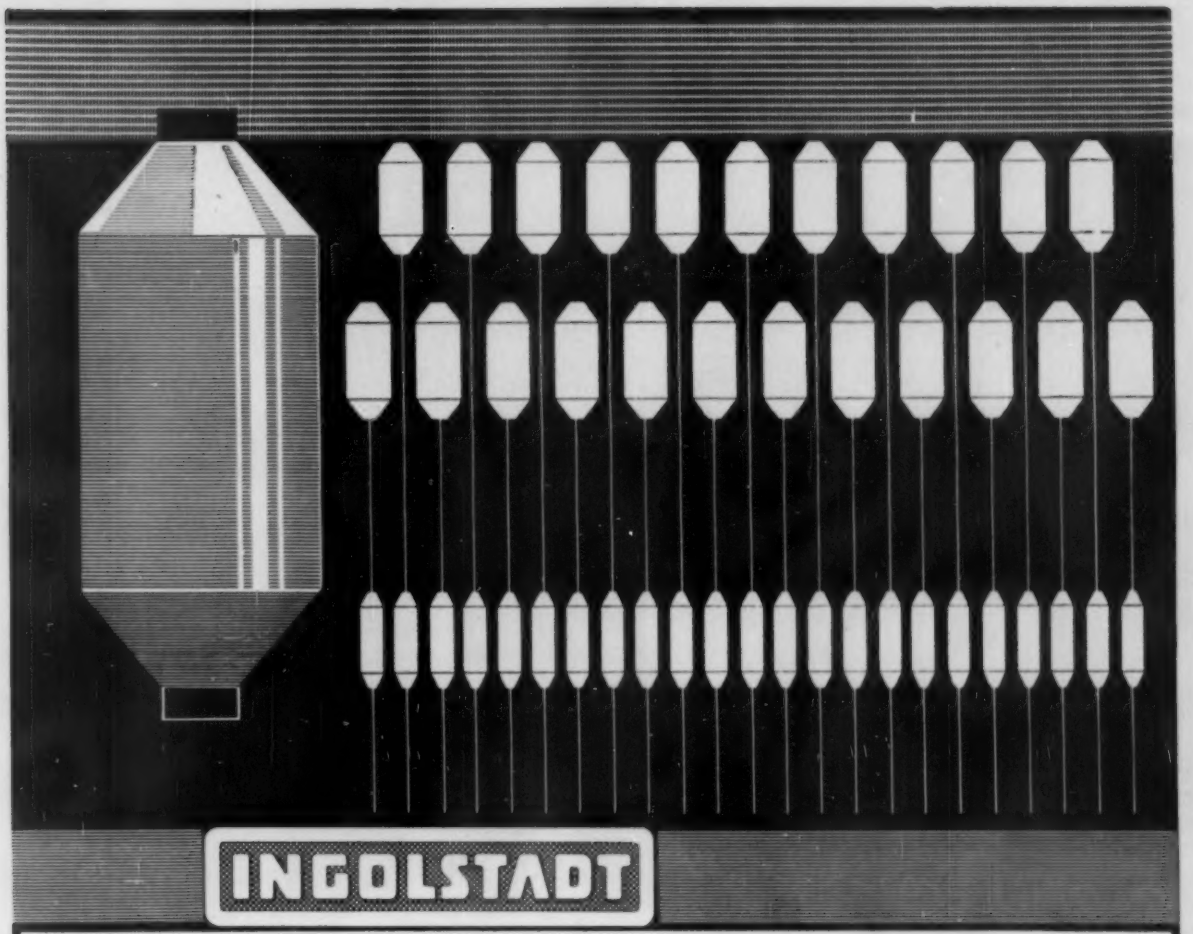
Here at last was a system which could record all transactions—at random—and simultaneously update all ledgers affected by the transaction . . . at tremendous speeds and with great reliability. Today, 3 years and thousands of experience-hours later, the IBM RAMAC remains the only truly random access method of accounting and control. And IBM has added even greater speed and flexibility to RAMAC through a sustained program of technical progress. Some of the advances that have resulted from this program are shown at right.

These continuing advances are part of IBM's concept of Balanced Data Processing—up-to-date systems and supporting services designed to keep ahead of the data processing problems of modern business. Your local IBM representative will gladly tell you more about RAMAC, its applications and benefits. Call him today. IBM RAMAC 305, like all IBM data processing equipment, may be purchased or leased.

balanced data processing **IBM**®

14 NEW REASONS WHY IBM RAMAC 305 OFFERS THE BEST SOLUTION TO YOUR RECORD-KEEPING PROBLEMS:

1. *Divide Command*—saves 80% of the time required by programmed division.
2. *Second Track Output*—permits concurrent printing and punching of different material.
3. *Increased Storage Capacity*—through a second, on-line 5-million character disk storage unit.
4. *Increased Production*—and decreased through-put time when seeking records at random, through the addition of dual access arm for each file.
5. *407 Printer On-Line*—makes available the high-speed printing ability of the IBM 407 Accounting Machine.
6. *Input Rearrangement*—permits writing data on card input track in different sequence from the original card.
7. *Input Analysis*—the ability to examine input cards for distinctive codes.
8. *Remote Printing Station*—permits inquiry and print out of information at a distance from the system itself.
9. *Paper Tape Reader* (382)—handles input from paper tape produced by teletype and other devices.
10. *Double Capacity Disk File*—10 or 20 million characters are stored in the same physical space previously required for 5 or 10 million characters. Files with dual access arms can be attached to the 305 system.
11. *Direct Input from Paper-Handling Equipment*—the linking of RAMAC and Series/1200 magnetic character-sensing equipment for banks.
12. *Compander*—permits groups of associated data to be updated, regrouped or altered in parallel transfers with fewer program steps.
13. *Program Exit Overlap*—a timesaving device which eliminates, or overlaps in certain cases, the 20-millisecond delay time normally required for excursion to the control panel for logical decisions and branching.
14. *Increased Processing Speed*—reduces the time required to transfer data between the drum tracks, thus reducing over-all operating time wherever process time is greater than input-output time. Reductions of up to 25% in processing time and up to an average of 20% increase in through-put time may be realized with no change in the existing program itself.



Planning and supply

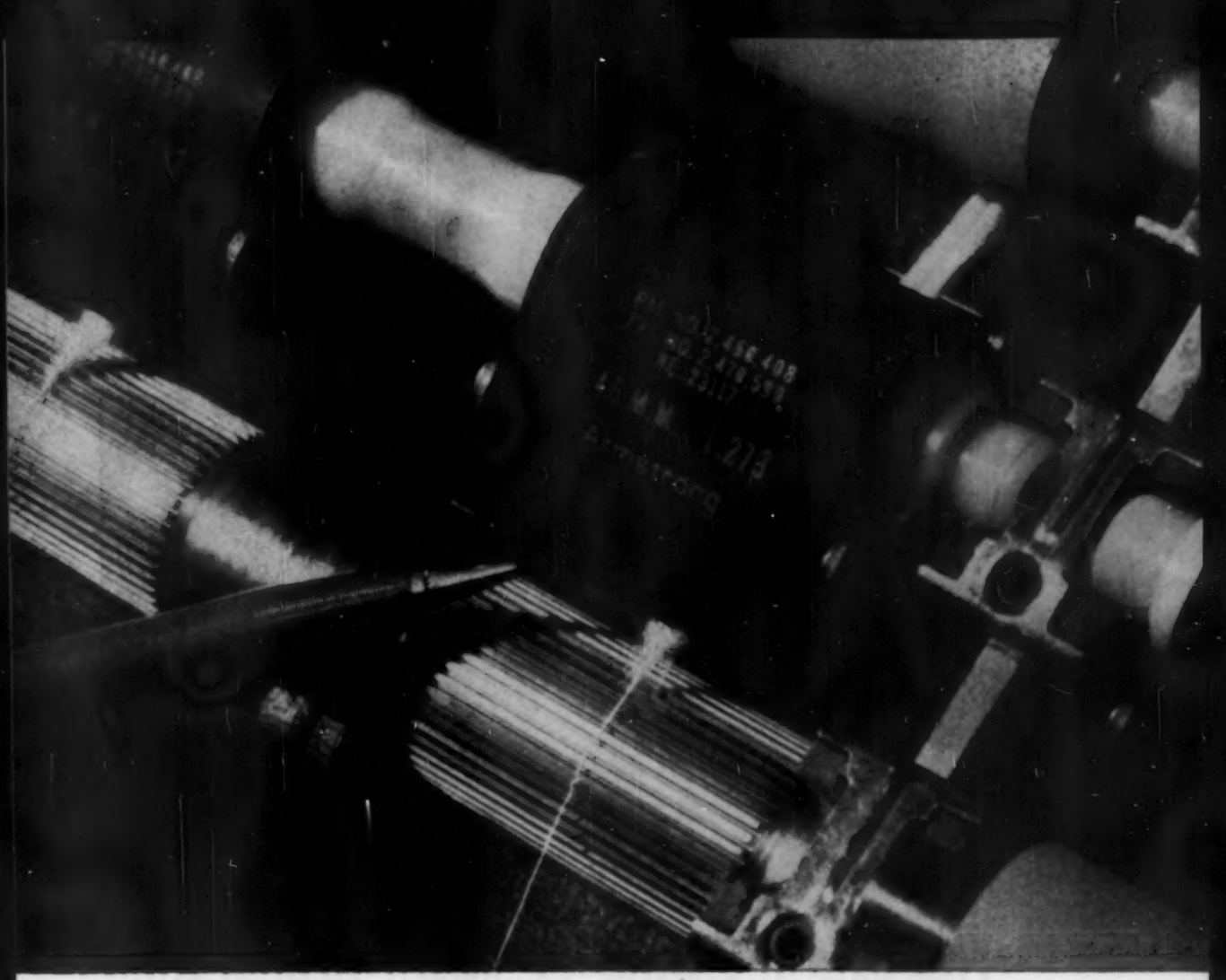
of complete spinning plants for cotton, worsted,

artificial and synthetic staple fibres

DEUTSCHER SPINNEREIMASCHINENBAU INGOLSTADT/*Donau*

For close-pin double-apron systems, use Accotex NO-7075. This black-and-white apron pioneered the two-compound principle in aprons. Special synthetic rubber compounds give it smooth drafting properties and good resistance to abrasion.

For long-apron systems, Armstrong Accotex NO-7876 is recommended. Two special rubber compounds give it super-flexibility, superior fiber-handling characteristics, and unusual resistance to flex cracking and ozone.



Whatever your fiber or spinning system, an Accotex apron gives you quality yarn

Whether you use a close-pin double-apron system or a long apron system, there's an Armstrong Accotex Apron specially designed to give you long service and superior yarn control.

Every Accotex Apron is built with Armstrong's patented three-layer construction. The underside is a synthetic rubber compound with just the right frictional qualities to assure smooth drafting action and accurate tracking. The compound of the outer layer has superior fiber-handling characteristics to give strong, uniform yarn with any fiber or blend.

The center layer—a strong cord interliner—assures dimensional stability through years of spinning. These aprons can't stretch or curl. Yet they have the flexibility required for smooth performance.

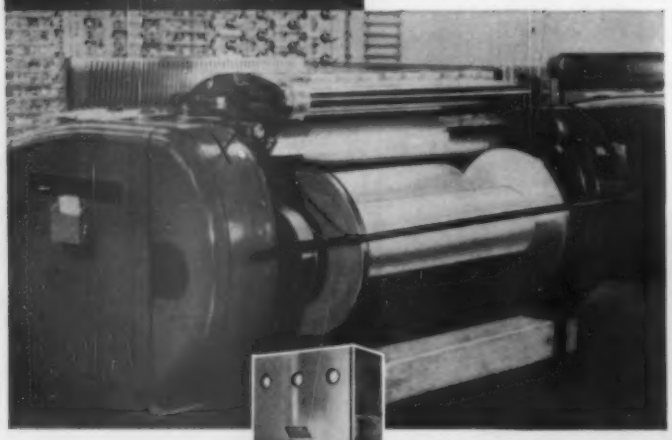
Armstrong will be glad to arrange a test installation of Accotex Aprons in your own mill. Contact your Armstrong man or write Armstrong Cork Company, Industrial Division, 6402 Dauphin St., Lancaster, Pa.

Armstrong ACCOTEX APRONS

1860–1960 Beginning our second century of progress

CIRCLE 27 ON READER SERVICE CARD

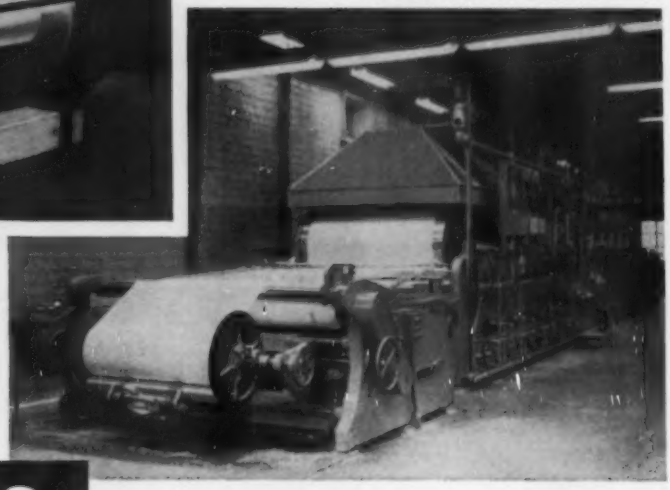
THIS



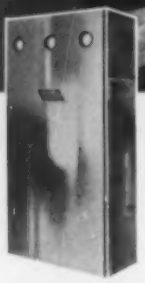
The Cocker **SD49** Warper and Creel

COCKER

The New Cocker **GH** Slasher



+ THIS



The Nemo Jet Cooker

+ THIS

= The World's FINEST Warp Preparation

ONLY COCKER has had experience in all types of warp handling problems, and only Cocker produces all types of warp handling equipment. You get the finest warps in the world with a co-ordinated all-Cocker installation.

High Speed Rayon Warpers
Slow Speed Rayon Warpers
Slow Speed Cotton Warpers
Ball Warpers
Gas Warpers
Snake and Link Warpers
Vertical Cotton and Rayon Creels

Horizontal Cotton and Rayon Creels
Cheese and Spool Creels
Special Jute Creels
Nemo Jet Cooker
High Speed Cotton Slashers
High Speed Rayon Slashers
Jute Slashers

Carpet Slashers
Tire Cord Slashers
Heavy Duty Beamers
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47 YEARS IN THE SOUTH

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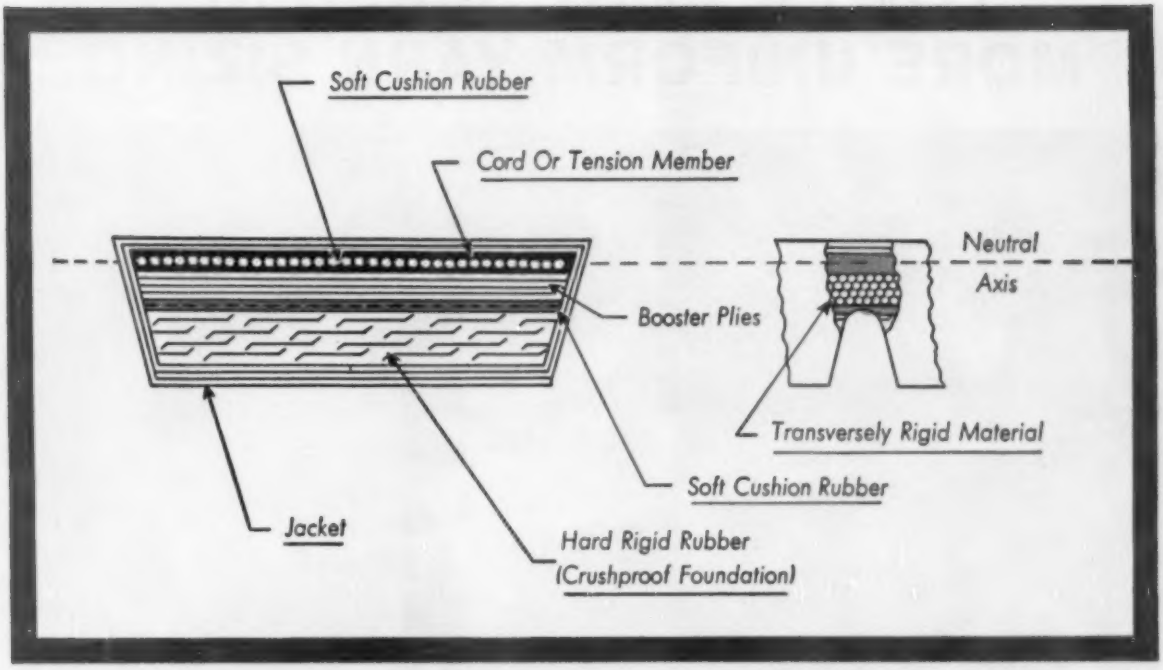
WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

US RUBBER ROYAL VARIABLE SPEED BELT



HERE'S WHY THIS VARIABLE BELT IS NON-SQUASH, NON-SAG

No excuse for any more variable speed belt problems. The U. S. Royal Variable Speed Belt will lick any production problem – where other belts try and fail.

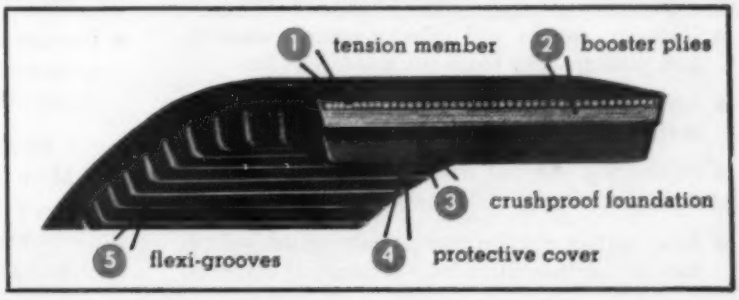
Note in the diagram the use of hard rigid rubber – the soft cushioning rubber in which cords or tension members are imbedded – the special jacket (oil and heat resistant).

The exclusive and complete crosswise rigidity in U. S. Royal prevents squashing. Lengthwise stretch is just about zero, by every test. *No sagging.*

U. S. Royal has complete accuracy regardless of speed changes – whether you switch from 2000 rpm to 10. It has scored a complete success in every textile mill, pulp and paper mill, chemical plant and metal working plant in which it has been installed.

• • •

Your nearest "U.S." Power Transmission Distributor will be glad to demonstrate the U. S. Royal on your own drives, at your own plant. You'll save a great deal in replacement costs and down goes downtime.



Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

NOW...FASTER,
LOWER COST SLASHING
MORE UNIFORM YARN SIZING

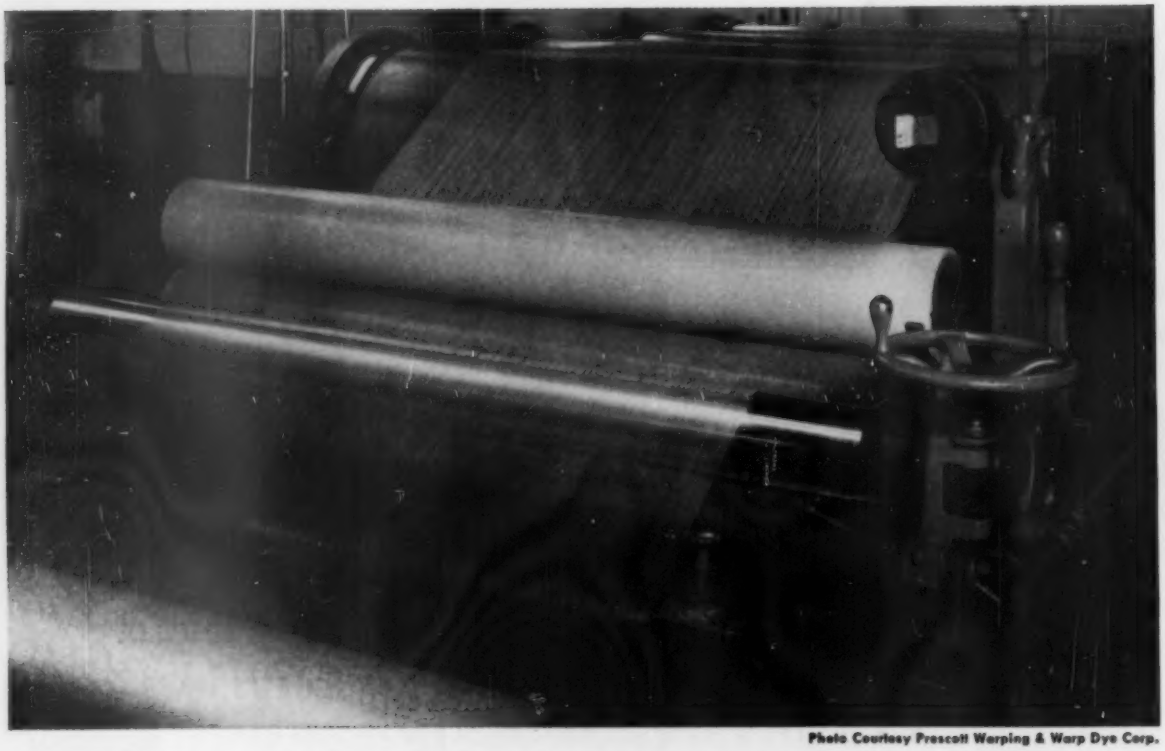


Photo Courtesy Prescott Warping & Warp Dye Corp.

NEW MANHATTAN SLASHER ROLLS ARE YOUR BEST BUY AT SQUEEZE AND DRESSING ROLL POSITIONS

ONLY MANHATTAN SLASHER ROLLS OFFER THIS COMBINATION OF FEATURES:

- Special synthetic rubber compounds control size pick-up to your requirements.
- Uniform, correct roll density assures *uniform, even* pick-up—the finish *you want.*
- Accurate metering of size permits substantial savings in starch costs.
- Distinctive red roll color permits faster, easier detection of yarn-end breaks.
- Keep perfect cushion *without* indentation—eliminate slasher downtime costs to maintain blankets.
- Roll end-caps prevent metal corrosion between cover and metal core.
- Provide highest resistance to starches, gums, softeners, oils or chemicals. Can be reground for longer life.

Let a Manhattan roll engineer show you how to get "More Use per Dollar" with Manhattan Slasher Rolls. Ask about the new Textractor and Texroc Rolls for maximum water removal and longer life on your mangles.

RM1088

ENGINEERED RUBBER PRODUCTS ...MORE USE PER DOLLAR

RM

ROLL COVERING PLANTS AT PASSAIC, N. J. • NEENAH, WISC. • N. CHARLESTON, S. C.

RAYBESTOS-MANHATTAN, INC.

MANHATTAN RUBBER DIVISION, PASSAIC, NEW JERSEY

Designed for sight-seeing Americans by
George Carmel
in a wool check, dyed with
National® Superchrome Black PV
and cross-dyed with
National® Alizarine Cyanone Green 4G

Another versatile, new dye from National Aniline . . .
NATIONAL ALIZARINE CYANONE GREEN 4G

Applied neutral or in a weakly acid bath, this new American-made dye is comparable in fastness to neutral premetallized dyes, with good overall wet fastness and exceptional resistance to light.

National Alizarine Cyanone Green 4G produces handsome self-shades of bright, yellowish green in light and medium tones to rich, deep shades. It is recommended as well for shading both chrome and neutral premetallized dyes.

Samples and data on request.

NATIONAL ANILINE DIVISION
40 RECTOR STREET, NEW YORK 6, N. Y.
Atlanta Boston Charlotte Chicago Greensboro Los Angeles
Philadelphia Portland, Ore. Providence San Francisco
In Canada: ALLIED CHEMICAL CANADA, LTD., 100 North Queen St., Toronto 18
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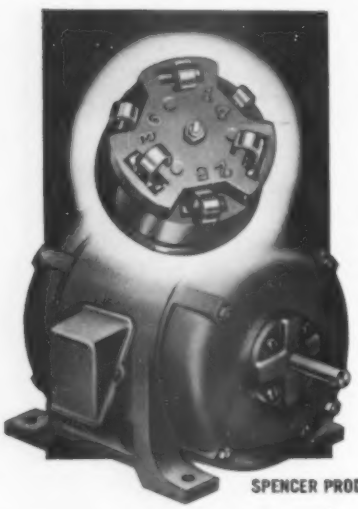
Allied Chemical

HUNTING

for a Solution to STOP MOTOR BURNOUTS

Specify and use 3-phase motors with built-in KLIXON PROTECTORS



SPENCER PRODUCTS

RESULT . . . • *Eliminate Motor Burnouts* • *Get Maximum Motor Output* • *Reduce Costly Equipment Down Time*

No matter what the motor application . . . whether it be textile looms or turret lathes . . . ventilating fans or rolling mills . . . built-in KLIXON Protectors keep motors from burning out under all conditions that cause overheating.

Built-in by the motor manufacturer, as an inherent part, KLIXON Protectors are matched to the thermal characteristics of the motor providing a tested and proven combination to assure full protection. KLIXON Protectors safeguard motors and prevent burnouts caused by the following conditions . . . prolonged overloads, unbalanced voltage, stalling, failure to start, increased ambient temperatures, lack of ventilation, plugging,or reversing duty, and single phasing.

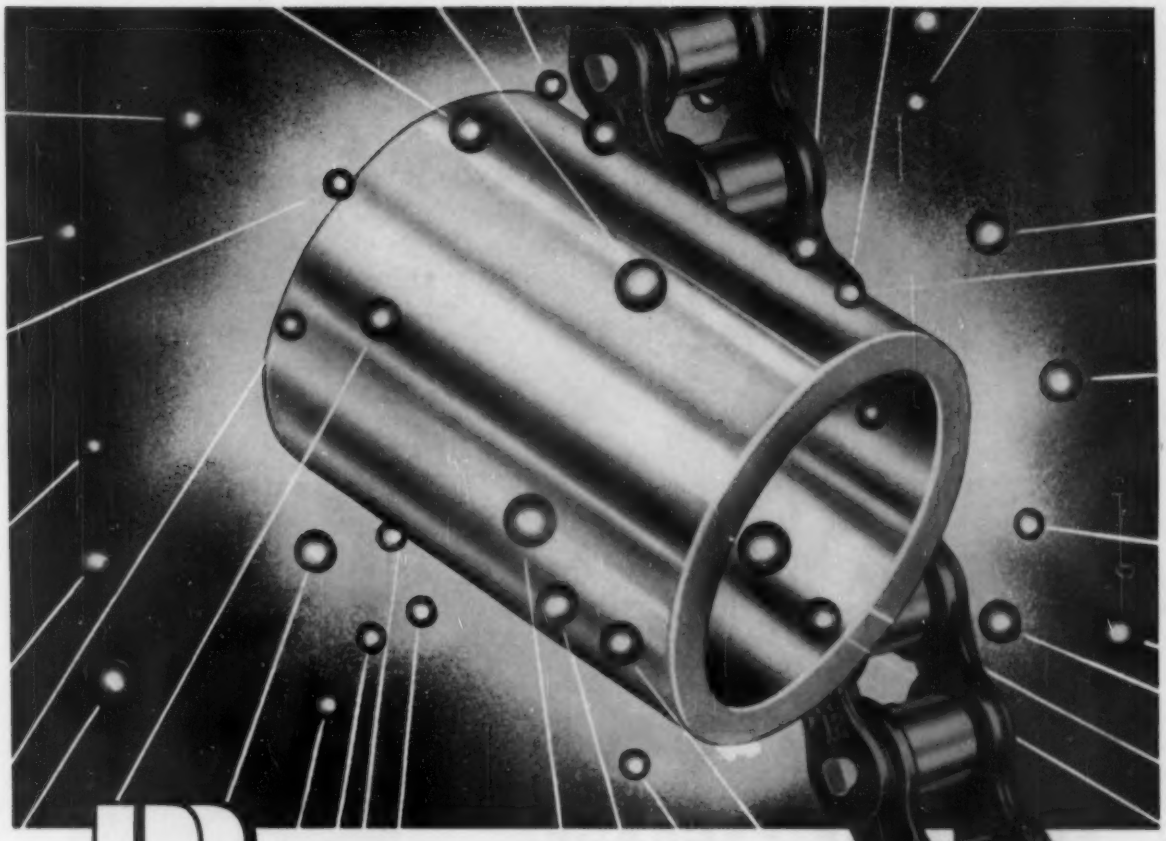
And remember, get the same complete protection in your single phase motors, too.

KLIXON protected motors are available from your motor supplier. The additional cost is low, the savings great. Ask your motor supplier for KLIXON protected motors.

Write for a free copy of Bulletin PR-1243. It gives the complete story.

TEXAS INSTRUMENTS
INCORPORATED
METALS & CONTROLS DIVISION
5502 FOREST STREET • ATTLEBORO, MASS.

SPENCER PRODUCTS: Klixon® Inherent Overheat Motor Protectors • Motor Starting Relays • Thermostats • Precision Switches • Circuit Breakers



Rollers

fortified against fatigue

Shot-peening "cold-works" extra fatigue life into LINK-BELT roller chain

Shot-peening gives rollers of Link-Belt precision steel roller chain exceptional strength and stamina. And after shot-peening, they are burnished rather than ground or sanded. This achieves a SILVER-BRITE finish—and more important, *retains the fatigue resistant qualities of shot-peening.*

Other long-life "extras" of Link-Belt roller chain include: close heat-treat control, lock-type bushings, pre-stressing, pitch-hole preparation. For details, see Book 2657.

LONG LIFE AHEAD! Rollers for Link-Belt precision steel roller chain tumble out of shot-peening machine after being cold-worked to withstand punishment of today's high-speeds and heavy loads.

LINK-BELT

ROLLER CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.
15.981

BOOK 2657 has 154 pages of roller chain data. For your copy, contact your nearest Link-Belt office or authorized stock-carrying distributor. (See CHAINS in the yellow pages of your phone book.)

NEW AUTOMATIC SPOOLER

TYPE "F"

FOR LARGE PACKAGES

This newest in the famous line of Barber-Colman Automatic Spoolers combines the best features of some predecessors, and adds a few outstanding characteristics of its own. For example, an improved and lengthened auto-skewering bobbin pocket now takes bobbins up to 12¼" long.

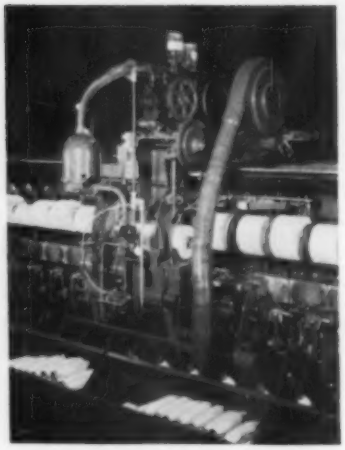
SEE IT AT...

AMERICAN
TEXTILE MACHINERY
EXHIBITION

ATLANTIC CITY

NEW JERSEY
MAY 23-27, 1960

The quick-set snick plate, one of the simplest and most effective yarn cleaners ever developed, is found again in its familiar location. The bakelite winding drum is back, inherently balanced as moulded, and now with a crossover double groove. One new feature is the *automatic* sorter, working in conjunction with the conveyor belt, that separates empties from tailings bobbins. Another useful feature is the double supporting arms, with built-in brake, for cheese (or cone). This machine makes big 6½-lb. packages from big (up to 12¼") bobbins — for use on warping, doubling, twisting, backwinding, sale cones, knitting, unifil, shuttleless looms, or quillers. *For many other features and full details, see your Barber-Colman representative.*



Above, a close-up view of the new Type "F" traveler showing the new cheese-arm plow, brake-actuating mechanisms, simplified construction, and accessible auxiliaries.

"EVERY KNOT A TRUE WEAVER'S KNOT"

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

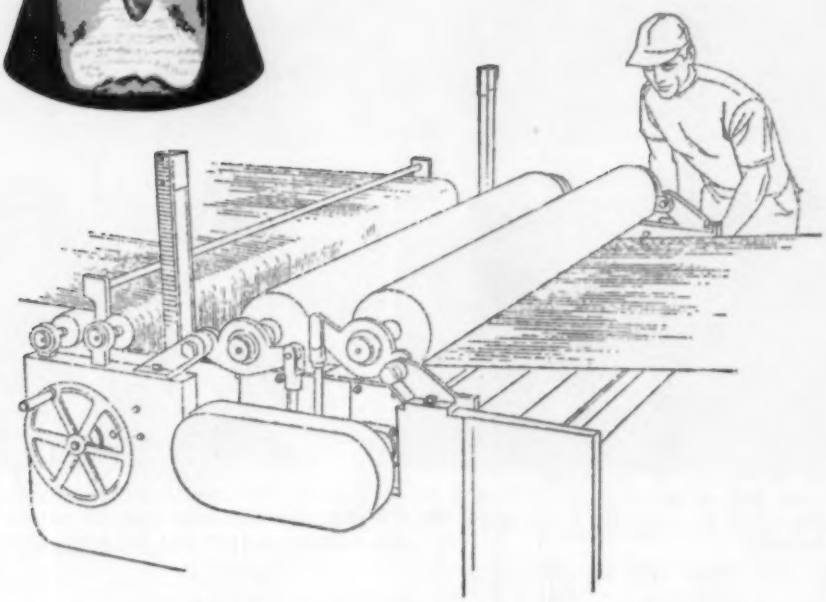
BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. — GREENVILLE, S. C., U.S.A. — MANCHESTER, ENGLAND — MUNICH, GERMANY

INDIA	MEXICO	BRAZIL	JAPAN	PAKISTAN	PAKISTAN
Patuck & Company Tribes Street, Fort Bombay, India	J. Rabata Isabella Catolica 45-513 Apartado 2445 Mexico, D.F., Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201-3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do Yei Shoji Kabushiki Kaisha Atlas Building - 7th Floor 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

FROM A KERNEL OF CORN THROUGH CHEMISTRY



Kofilm ACETYLATED STARCH DERIVATIVE

NEW STANDARD FOR SIZING

There's been a change. In warp sizing results. They're now much more uniform. Because KOFILM, a unique acetylated starch, eliminates variations in viscosity and strength. As proved in mill after mill in little more than a year.

KOFILM prolongs viscosity stability over extended periods of time. Eliminates lumping and congealing. It forms exceptional films. High in strength. Extremely flexible. Very tough. Reduces stoppages. Helps produce more uniform yarn.

KOFILM is quick and simple to prepare. It is available in a complete range of viscosities for all constructions and blends. It is also recommended for wash 'n wear finishes. Why not compare it with whatever starch product you're now using? Write for a sample and data, telling something of the use you have in mind.

National
STARCH and CHEMICAL
CORPORATION

750 Third Avenue, New York 17
3641 So. Washtenaw Avenue, Chicago 32
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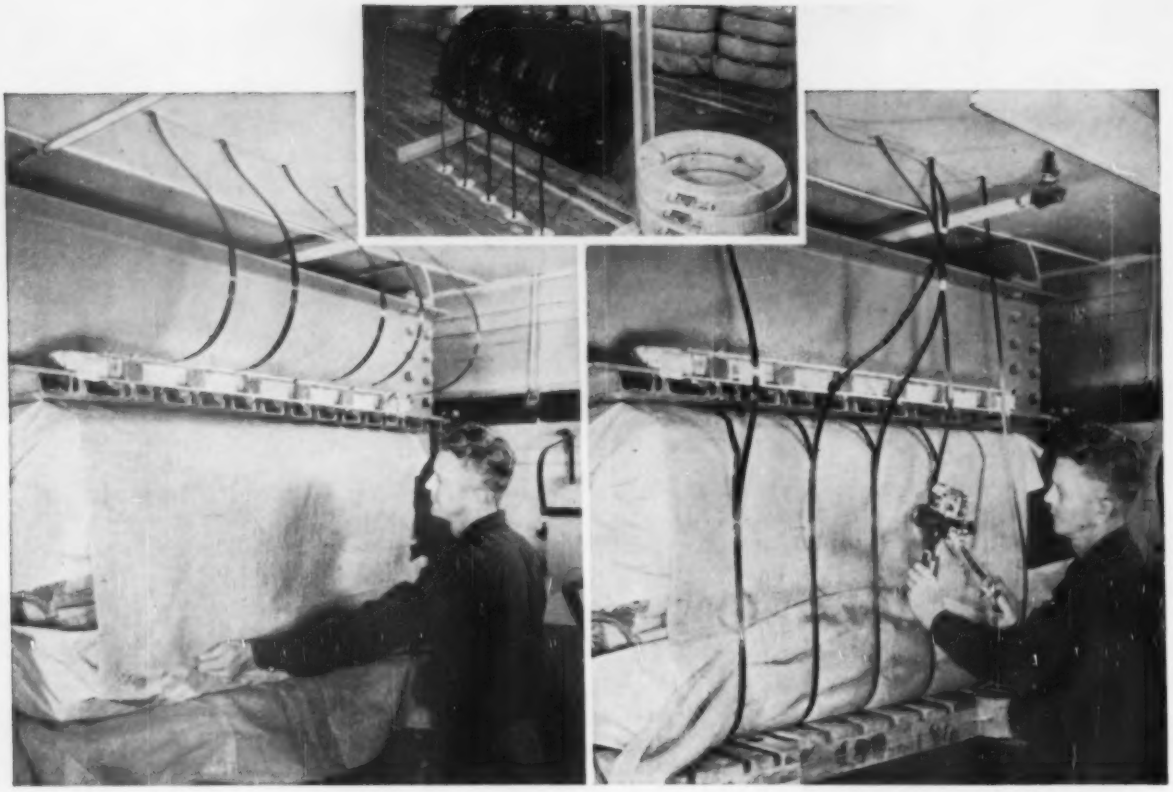
CIRCLE 35 ON READER SERVICE CARD



Strapping is fed from dispensers in room above press (inset). A magnetized bar holds the straps in position while bale is readied.

Signode's exclusive Model SFC tool tensions the strapping, feeds seals from magazine, and crimps them. Straps are severed at the seal. No waste strap.

Signode way produces denser bales and reduces strap use by 17%

These before and after photographs show clearly the improved density and appearance of bales.

Here's an example of a simple and inexpensive answer to a packaging problem. Waste—which was part of the former cut-to-length strapping method—was eliminated, with a 17% saving in the amount of strapping used. Bales are better looking. Their increased density saves about 7% of valuable space in storage and shipment. The entire strapping operation is simplified, goes easier and faster.

Why not let a Signode man take a new look at your packaging and shipping operation. He has an eye for savings, specialized knowledge of textile applications, and a complete line of strapping tools and machines at his disposal. Call him today, or write:

SIGNODE

First in steel strapping

SIGNODE STEEL STRAPPING CO.

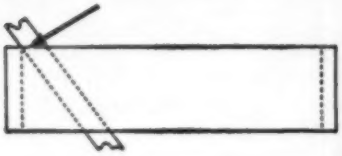
2642 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

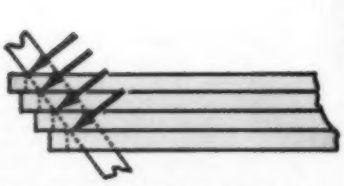
CIRCLE 37 ON READER SERVICE CARD→

Gates 4-in-One Check Strap LASTS up to 3 TIMES LONGER

New Checking Principle is Secret of Longer Wear—



With the ordinary one-piece check strap, all shock and wear from the picker stick are concentrated at one point.



Gates 4-in-1 Check Strap is built with four separate bands. As the checking action begins, a portion of the picker stick force is absorbed by the top band—then in turn, the second, third and fourth bands each absorb a portion of the shock, providing a checking action that is smooth and even. Wear is distributed evenly over the entire width of the strap, increasing service life up to 3 times.

You Get These Important Benefits:

Unaffected by Changes in Humidity—no stretch or contraction—ready to go Monday mornings without time-consuming adjustments.

Stronger and Tougher than Leather—yet flexible and light in weight.

Absorbs Shock of Picker Stick—resilient and flexible—conforms to any action of the picker stick, absorbing blows and shocks.

Saves Installation Time—quickly installed and adjusted without removing picker sticks. No new brackets needed.

Competitive Price—even though Gates 4-in-1 Check Strap has many important advantages over ordinary straps, it is competitively priced. For faster, more economical production, equip your looms with *all* Gates *specially engineered* accessories... available from Gates Textile Distributors.

Gates Distributors are in the Yellow Pages

Gates

The Gates Rubber Company, Denver, Colorado

The Mark of *Specialized* Research

TPA-900

Take-up Roll Coverings
Card Bands
Cone and Evener Belts
Spinning Frame Drives

Reversible Pickers

Tex-Hide Harness Straps

Tex-Hide and Vulco Loop Pickers

Thin Tex, Vulco, Tex-Hide & Super Tex-Hide Lug Straps

Gates Textile Accessories

FOSTER BRINGS

With LINDLY Electronic Controls

Lindly & Company, Inc. of Mineola, N. Y. and Foster Machine Company of Westfield, Mass. take great pleasure in announcing that, effective in January 1960, Foster is the exclusive sales representative for Lindly Electronic and Electrical Products for the textile industry in the U.S.A.

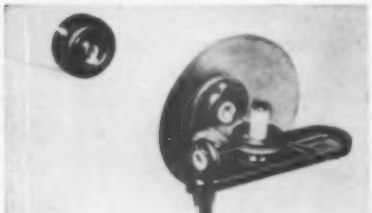
Complete automation in the textile industry is impossible without automatic controls. Lindly Electronic and Electrical Controls supply this missing link. At present they include the following:—

LINDLY AUTOMATIC YARN INSPECTOR

Lindly Automatic Yarn Inspector for filament yarns.

Used primarily by producers and processors of synthetic yarns, it is a high speed, ultra sensitive photoelectric instrument for detecting yarn defects such as broken filaments, strip-backs and fluff balls in warping. It can be made to operate a counter, a signalling device, or to actuate a machine stop switch — singly or in combination for any degree of imperfection. For example it can be made to count minor defects and to stop the warper only for repairing major defects.

LINDLY ELECTROTENSE



Lindly Electrotense.

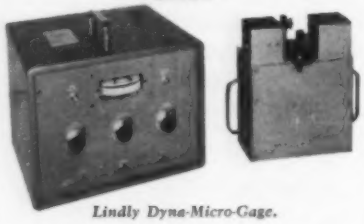
This unique yarn tensioning device for warp creels, winders, twisters, knitting machines, looms and similar operations provides completely uniform tension for any number of ends and the tension for all ends can be varied at will by turning only *one* dial. It consists of two conventional type discs, with a small electromagnetic coil beneath. The lower disc is made of nonmagnetic brass, while the upper disc is of magnetic iron. Thus when the coil is energized through a central electronic control, the upper disc is attracted downward, pressing the yarn between it and the lower disc in any degree desired. The pressure is pulsating which fact prevents backup of twist and helps to keep the tension discs clean and free turning.

LINDLY PHOTO-SCANNER

This is a very sensitive photoelectric inspection device for use on tricot knitting machines to scan the cloth continuously for defects during the knitting operation and automatically stop the knitting machine when defects occur. The scanner is mounted above the center of the knitting machine. Oscillating back and forth, it scans the cloth along a path about 1 inch wide and 1 inch from the needle bar and up to about 3 inches from each selvage. Defects are kept to approximately 3 inches in length; patrolling labor is greatly reduced.

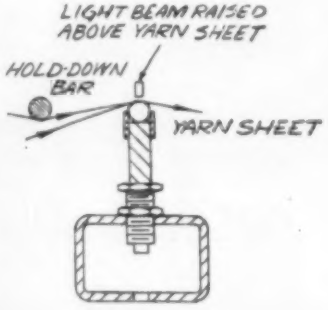
Lindly Photo-Scanner for warpknit fabrics

LINDLY DYNA-MICRO-GAGE



Lindly Dyna-Micro-Gage.

Among the many uses for this instrument is the continuous monitoring of spun and filament yarns to an accuracy of a few millionths of an inch. It is photoelectric in principle, utilizing a change in amount of light falling on a phototube for its operation. It can be set for almost any desired sensitivity range, from quite coarse to very fine. Will check the average denier of filament yarns, the uniformity of spun yarns on a quantitative basis, the size of holes in spinnerets; measure and record yarn tension; check and monitor the strength of chemical solutions. In most cases can also be provided with a feed-back system to continuously control the process itself.



Cross section drawing of Lindly Automatic Spun Yarn and Tire Cord Inspector.

LINDLY SPUN YARN AND TIRE CORD INSPECTOR

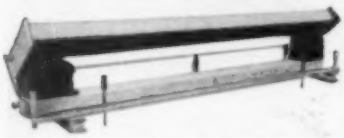
This differs from the regular Lindly Automatic Yarn Inspector in that the defects for which the unit is actuated can be selected on the combined basis of length and height. Long, low defects will be caught as readily as short, high ones; yet knots can be made to pass through undetected. Application has been successful on tire cord and wool and worsted yarns, where it has been discovered that it is cheaper to remove defects during the warping operation than subsequently in mending, particularly when these defects tend to cause yarn breakage and machine down time later on.

LINDLY THREAD AND LINE INSPECTOR

This is also a modified version of the regular Lindly Automatic Yarn Inspector. It is used to inspect, on a single or double end basis, thread, yarn, string, fishing line, medical sutures, etc. Most fishing line manufacturers in this country are using it. Another application is for qualitative sampling by large purchasers of yarns.

ELECTRONICS TO TEXTILES

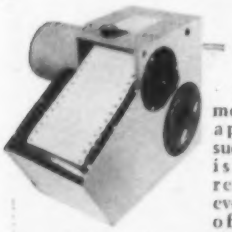
LINDLY AUTOMATIC END BREAK DETECTOR



Lindly Automatic End Break Detector.

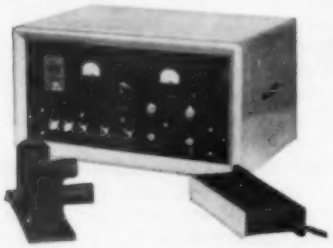
This unit, photoelectric in principle, uses two light beams traversing the width of the yarn sheet, one above and one below. It detects a broken end when a wave or ripple in the end is caused by the sudden release of tension. Usually the broken end remains back in the creel where it is easily spliced up. A combination of the Lindly Automatic Yarn Inspector and this End Break Detector makes a very effective team for controlling yarn quality in a warping operation.

LIND-RECORDER



Lind-Recorder.

This instrument has many applications, such as when it is desired to record or time events of an on-off or yes-no nature, such as machine down time, units produced per machine, including yards, knots, r.p.m., picks per minute, etc. Furthermore, the Recorder can be placed at any reasonable distance from the happening (for instance in the supervisor's office) so that all information is continuously fed into a central location. No filling of ink reservoirs and no wet paper storage.



Lindly Photoelectric Seam Detector.

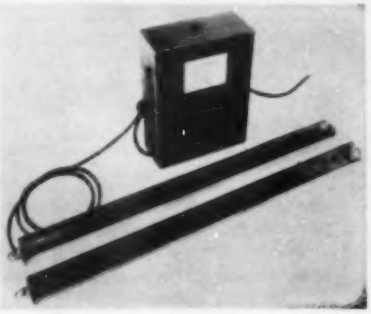
LIND PHOTOELECTRIC SEAM DETECTOR

This device is successfully used as a non-contact method of indicating the presence of seams in fabrics during shearing, calendering, printing, coating, tubing and all other operations preceded by batching. It can be made to actuate a stop motion or counter, to lift a pressure roll or to perform any other action required because of the presence of a seam. It does this within a few thousands of a second, making detection practically instantaneous.

LINDLY AUTOMATIC YARN DEFECT ANALYZER

Lindly Automatic Yarn Defect Analyzer.

This is a portable model of the Lindly Automatic Yarn Inspector, filament or spun yarn type, for use on a single end of yarn or roving. It consists of an electronic control unit mounted in a cabinet on a dolly and a specially designed detecting head. This head is adjustably mounted on a vertical column and can be moved up and down and back and forth. The unit can be wheeled up to a machine and the head set to inspect a single end of yarn while in process. Thus it is valuable for spot checking or sampling a given batch of yarn, or the output of a certain machine or spindle for laboratory or quality control purposes. One mill is using it to sample yarn batches, twenty ends at a time.



Lance Static Eliminator.

LANCE STATIC ELIMINATOR

This instrument, made in a variety of models, has an application wherever there is a problem in textile operations due to static electricity. It causes a high voltage discharge from pointed electrodes into the air, causing the fibres to be surrounded by ionized air, which serves to discharge the static electricity accumulated all around the surface of the fibre. Whereas the voltage is high enough to effectively ionize the air, it cannot harm the operator who accidentally comes in contact with the electrodes.

Future Developments

Other Lindly Products which we hope to announce in the not too distant future include a Fabric Inspector and a Tension Control and Stop Motion for circular knitting machines.

★ ★ ★

Where Will You Start?

The trend in all industry is to automation. Automation will not come all at once. It will come step by step, as reliable automatic controls are developed for each processing operation.

Lindly Electronic and Electrical Controls for spinning, twisting, warping, knitting and finishing point the way. Where will you start? Use the coupon to tell us. Let us help you to decide.

FOSTER MACHINE COMPANY

Exclusive Selling Agents for Lindly Electronic and Electrical Controls for the Textile Industry in U. S. A.

Westfield, Massachusetts, U.S.A.

Southern Office — Johnston Bldg. Charlotte, N. C.

Date .....

Foster Machine Company
Department TW-2
Westfield, Mass.

Please send me additional information about electronic or electrical controls for .....

Name ..... Title .....

Company .....

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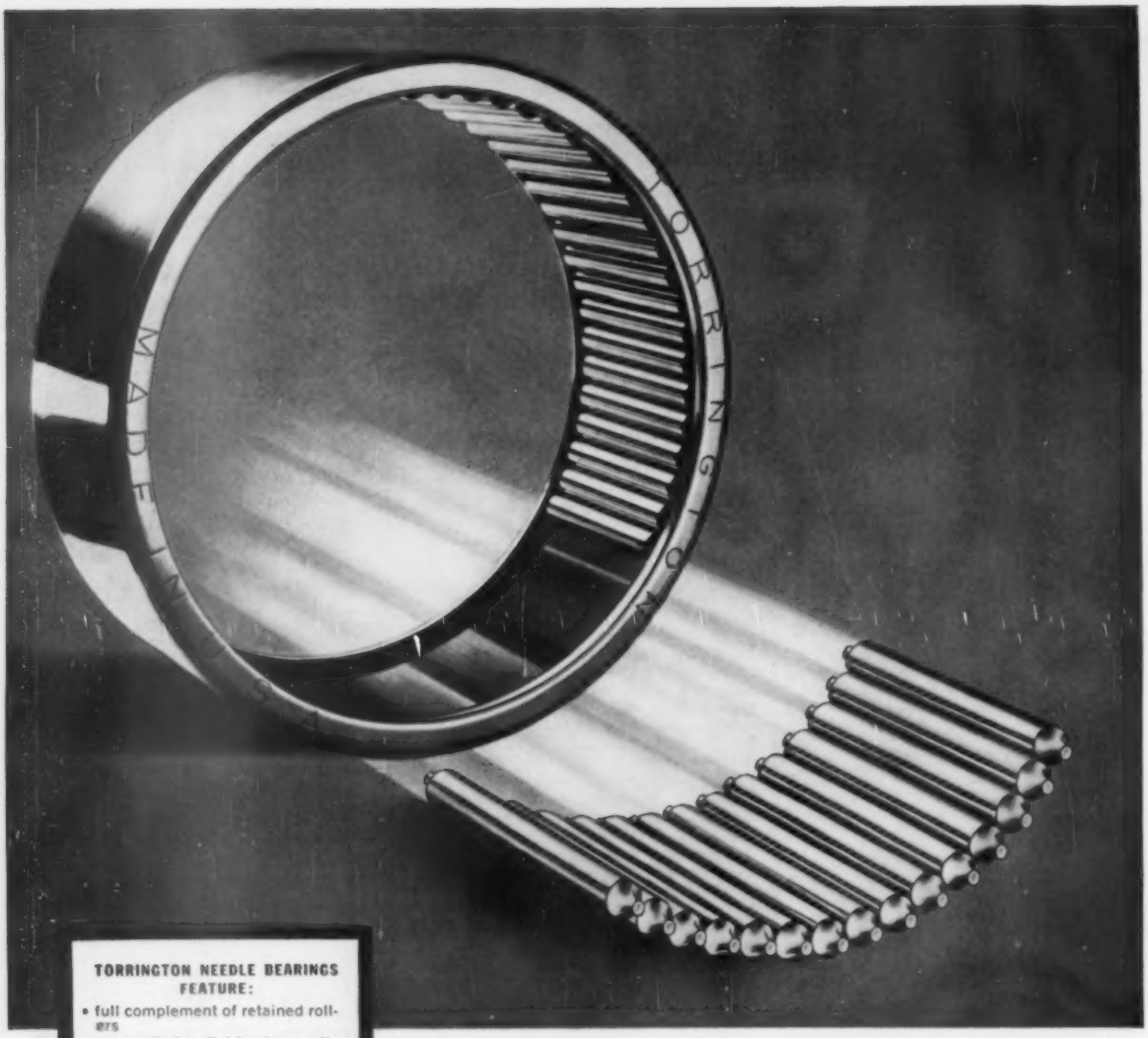
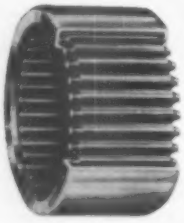
539-9



TORRINGTON NEEDLE BEARINGS FEATURE:

- full complement of retained rollers
- unequalled radial load capacity
- low coefficient of starting and running friction
- low unit cost
- long service life
- compactness and light weight
- runs directly on hardened shafts
- permits use of larger and stiffer shafts



Here's Why Torrington Needle Bearings Provide Maximum Radial Load Capacity

The Torrington Needle Bearing's full complement of small diameter rollers provides the largest possible number of bearing contact lines in the load zone.

This feature gives Needle Bearings a higher radial load capacity than any other bearing of comparable size. Precision rollers ensure smooth anti-friction performance with low coefficient of starting and running friction, to match this unequalled capacity. Rollers are positively retained by the turned-in lips of the outer shell, permitting simple, economical installation and assembly.

Torrington experience spans twenty years in design and application of Needle Bearings to equipment of all types. This experience is at your disposal to help you secure the ultimate in performance built into every Torrington Needle Bearing. **The Torrington Company, Torrington, Conn.—and South Bend 21, Ind.**

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

NEEDLE • SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • BALL • NEEDLE ROLLERS • THRUST

Partners for Profit . . .

Veeder-Root Loom Cut Meters and Pick Counters

Take the Veeder-Root Loom Cut Meter—it can be pre-set to the exact cut-length required. Then weavers can concentrate entirely on quality and production, without any cut marks to watch for.

Cuts are automatically uniform in length . . . either single or double cuts . . . no shorts or longs . . . no waste. You get new advantages in dyeing, finishing and converting, plus constant *Count*rol of inventory.

Or, the Veeder-Root Pick Counter — available for *count*rolling single, two, three or four shift production. Pick counters help pinpoint low efficiency looms for immediate correction. Pick counter readings provide data for production control and for payroll.

Unless your looms are equipped with both loom cut meters and pick counters, you're missing an opportunity to increase efficiency, lower your costs. It'll pay you to check with your Veeder-Root representative — he'll give you complete details.

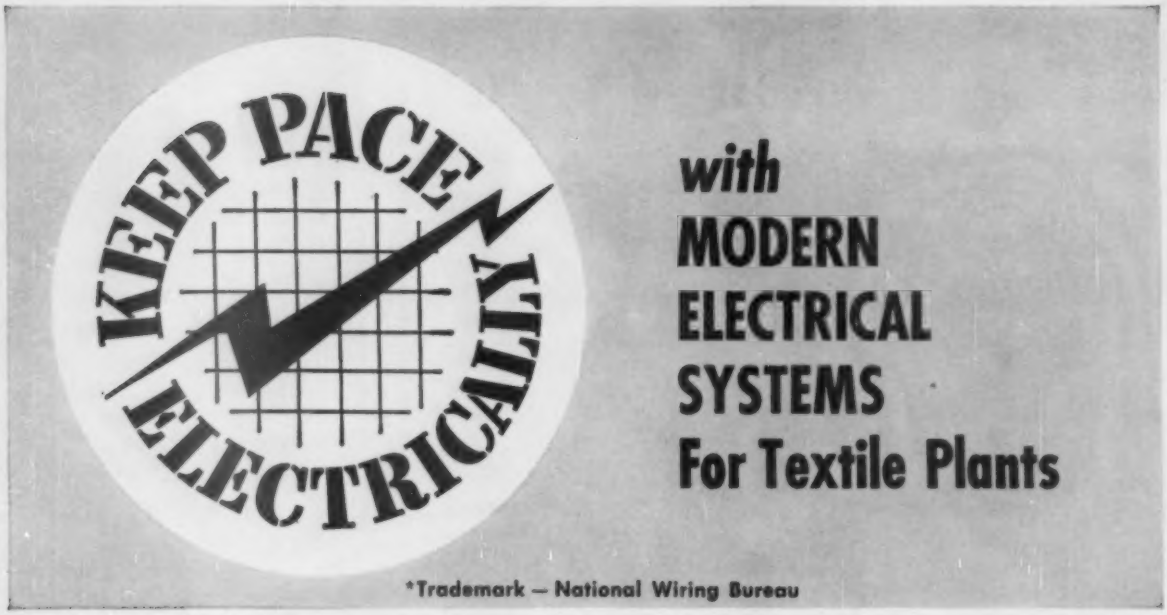
Veeder-Root

HARTFORD 2, CONNECTICUT

"The Name that Counts"

New York • Chicago • Los Angeles • San Francisco • Seattle
St. Louis • Greenville, S. C. • Altoona, Pa. • Montreal
Offices and Agents in other principal cities

CIRCLE 41 ON READER SERVICE CARD



This timely theme will form the basis for a major report scheduled to appear in the June, 1960 issue of TEXTILE WORLD.

Textile machinery is being modernized at an unprecedented pace. The advantages of increased production and lower operating costs gained through modern, efficient equipment have been successfully sold to mill management men. As a result, many machinery manufacturers are having orders coming in at the fastest rate in 10 years!

Amid all of this activity, the "silent servant" electrical systems that drive the equipment and control the power necessary to operate entire mills have been taken for granted. The majority of these systems are completely inadequate for the job to be done and oftentimes obsolete to the point of being dangerously hazardous.

The June report is the first major step ever taken to educate textile mill management in advantages of modern electrical systems and the critical need for an intensified improvement plan for existing installations.

Textile World recognizes a potential multi-million dollar market for electrical equipment manufacturers and will work editorially to make Textiles one of America's most electrically modern industries.

The June issue presents an opportunity for every electrical equipment manufacturer to let buying influences throughout the industry know what they have to offer to make every textile plant a safer, more efficient operating unit.

32% more READERSHIP than the 2nd publication. Unduplicated plant penetration.

Textile World

A McGraw-Hill Publication ABP ABC
330 West 42nd Street, New York 36, N. Y.

News about

B.F.Goodrich Chemical *raw materials*

Veil-spraying . . .

New, low-cost way to get novel decorative effects

A new and simplified method for applying patterns and textures to textiles has come from B.F.Goodrich Chemical Company laboratories. Designs of Geon vinyl plastics or latices can be applied to any type of fabric—non-wovens, wovens, knits, including tight or loose constructions from twills to scrims.

Spatter and swirl patterns approach the regularity of printed designs—yet there is no need for high-cost engraved rolls. Versatile Geon vinyl lets you use any color or combination. A secondary but often useful advantage: Geon adds far greater durability and wear-resistance.

The sprayed-on coating is extremely flexible, washable, and dry cleanable. In many cases, a three-dimensional effect can be produced with practically unaltered hand.

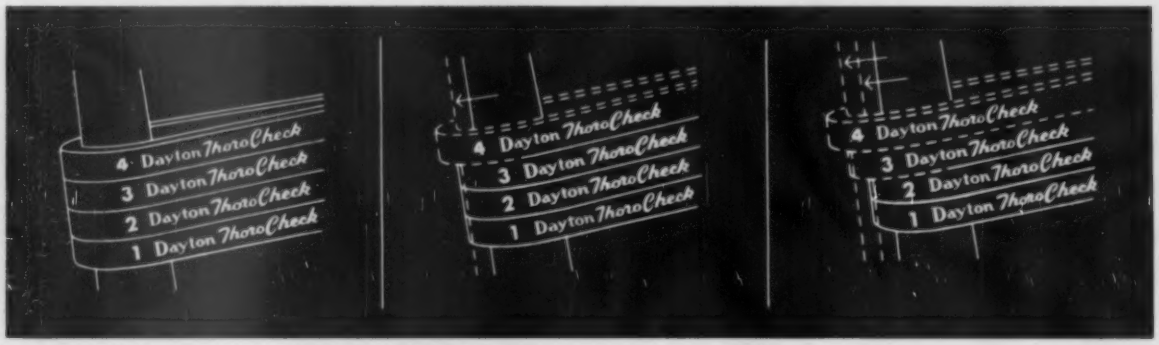
The process is based upon inexpensive, readily available equipment. You can get complete information by writing to Dept. KB-1, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

PRODUCTS FOR TEXTILE IMPROVEMENT

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON vinyls • HYCAR rubber and latex • GOOD-RITE chemicals and plasticizers

MILLIONS OF EXPLOSIVE BLOWS yet the Dayton Thorobred Loop Picker stays good as new on both regular and high speed looms. The angle of the picker face is faultless, without the slightest strain on the shuttle. Dayton's precision-smooth molding of fabric and rubber prevents lint pick-up and hanging filling. It's easy to parallel Dayton's Loop Picker accurately on the stick without tearing the lug ply, thanks to the special flared bottom at the tapered hole.



DAYTON ENDLESS THOROCHECK STRAPS OUTWEAR all others 3 to 1—save up to 50% in strap costs at leading mills. Why? Because there's less break-down. Dayton ThoroCheck Straps are for safe, *graduated* checking and keep picker in contact for perfect boxing. ThoroChecks help you step up production and cut downtime.

NO BUGGY WHIP ACTION of ordinary open-end check straps with Dayton ThoroChecks, as the stroboscopic camera shows. That's one of the reasons for the longer production life and the high speed performance of Dayton ThoroChecks.

GUARD 3 WAYS AGAINST LOOM DOWNTIME

Dayton's Thorobred 3 protects heaviest shock and wear points

When you add up the cost of downtime, labor, maintenance and inefficient production, you find that the day-in, day-out dependability of Dayton's Thorobred Loop Picker, Check Straps and Lug Straps on your loom make important dollar-sense. With less shock and wear and less downtime. Thorobred-protected weaving is a real money-making combination.

Ask your Dayco Representative to set up a test. Phone or write the Dayton Rubber Co., Textile Division, 401 South Carolina National Bank Bldg., Greenville, South Carolina.

Dayton Rubber

D R

Dayco and Thorobred Textile Products for Better Spinning and Weaving.

OVERSEAS PLANT: THE DAYTON RUBBER CO., LTD., DUNDEE, SCOTLAND

SMOOTH AS HYDRAULIC ACTION, Dayton Thorobred Deluxe Lug Straps cushion shock to lengthen loom life. They absorb firmly, gently, the hammer-hammer-hammer of the pickerstick thrust that wears out ordinary lug straps. The reason for this extra protection is the Thorobred one-piece construction, reinforced with Dayton's patented cable-cord design for shock-immune strength—double that of all others. No rivets, no easy-to-loosen parts. Dayton Thorobred Deluxe Lug Straps are molded around a plug built right in the strap loop.

Major Mill makes Record-Breaking Economy Run

Running a high-speed test over 14 months at 182 picks a minute, a major mill added up 70,200,000 impacts without sign of wear or need of adjustment of Dayton ThoroCheck Straps. Lower maintenance, reduced downtime ran up a 25% savings, and increased production of this mill and many others.

The special factor in the Dayton ThoroChecks is the smoother, "graduated" checking action, eliminating drag over the stick, allowing efficient functioning at highest speed.

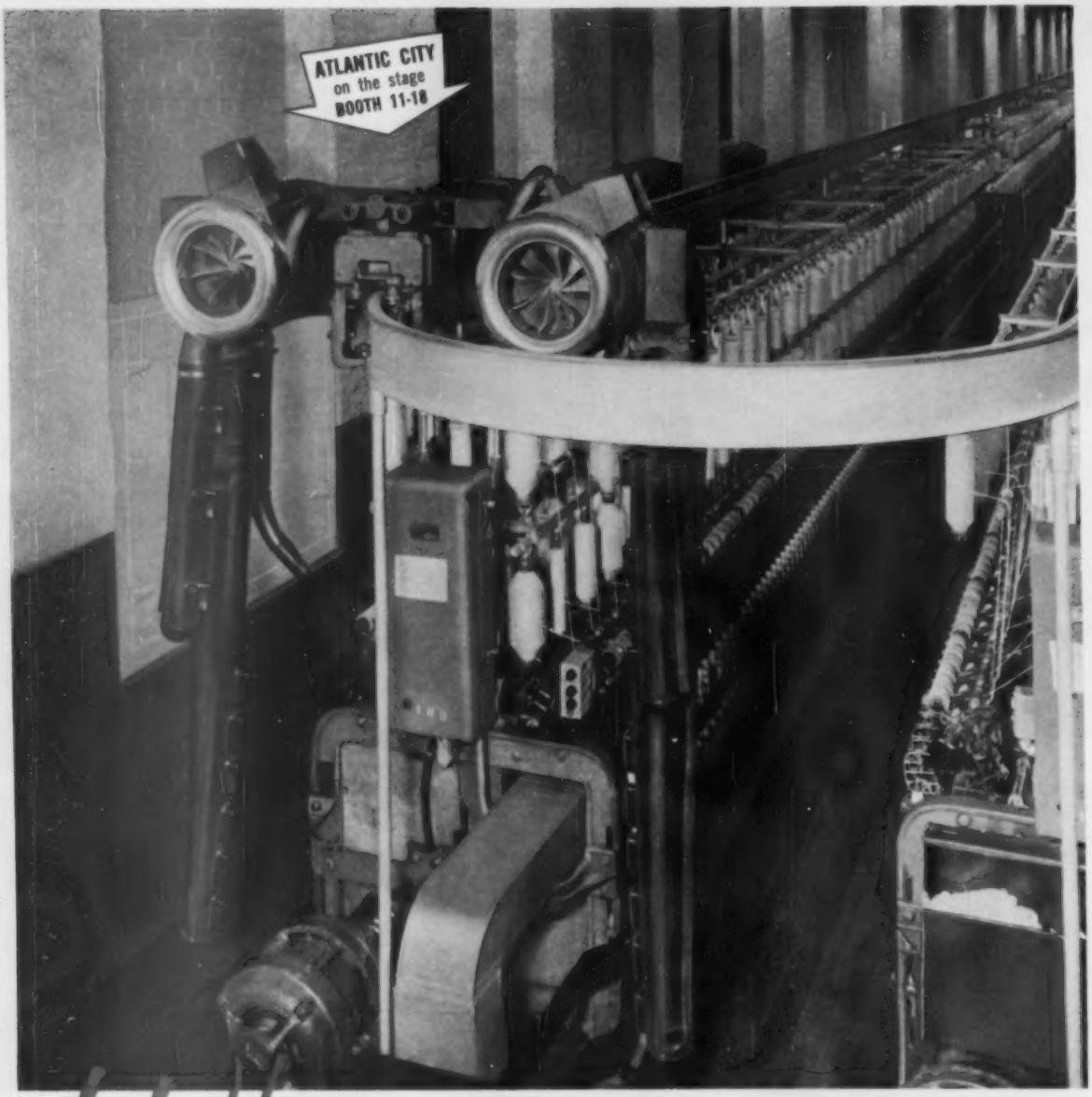
Your loom's out of business when the old-fashioned single solid strap breaks. But never with Dayton ThoroChecks.

Here's triple and quadruple insurance to keep your looms in production. When one's worn, the other Dayton ThoroChecks keep your loom going. Only when the loom is down for some other purpose, need a new ThoroCheck be installed. ThoroChecks also save on downtime after the week-end shutdown. Uneffected by temperature and humidity changes, ThoroChecks are ready to go at start-up time without tedious readjustment.

These mills not only tested the ThoroChecks but installed Dayton's Thorobred Lug Straps—a soundly designed unit to cut down wear throughout the loom. The built-in cushion accounts for the shock-proof feature absorbing fast starts and stops. And Dayton's patented cable and reinforcement doubles its shock-strength over all the others.

Economy records are also possible with Dayton's remarkable specially designed loop picker. It takes all the pounding and punishment of the new and heavier shuttles and higher speeds, yet outlasts other pickers 2 to 1 (and these new-type shuttles are 2½ times heavier than the conventional dogwood). Dayton designers point out that the slight-tilt construction provides perfect shuttle contact and the rounded front edges stop hanging filling, the narrow back eliminates wear on the lay-in strap. This triple economy combination of Dayton Rubber is thus far unmatched in its field.

CIRCLE 45 ON READER SERVICE CARD



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Big Companies Taking Over

News broke last month that J. P. Stevens & Co. will absorb Exposition Cotton Mills, Atlanta, Ga. This move has significance for most textile men, no matter what their jobs in the industry are or where they are located.

Occurring in the first month of 1960, this acquisition indicates that the strong 1950's trend of integration of independent mills into large textile corporations is continuing. It indicates also that the domination of the industry by a few companies is steadily becoming stronger.

Figures on production and sales for all of 1959 are not available yet, but in 1958 the top 50 companies in the textile industry did about 40% of the total industry business and the top 10 companies did 20% of the total. In 1959, these percentages increased. With acquisitions in 1960 already under way, another increase is almost certain to occur in 1960.

The Changing Industry

The change of the textile industry from a vast accumulation of small, independent companies to a relatively few large corporations has tremendous meaning. It is a repetition of what happened to the automobile industry and to the corner grocery store many years ago. If you buy a car now, you buy one that was made by a big corporation. If you buy groceries, you buy them in a chain store. If you work for a textile company, chances are about fifty-fifty that you work for a large corporation. If you don't now, just wait a while; you will.

It is well known that the last stronghold of independent mills is Georgia and Alabama, but J. P. Stevens and Burlington are steadily increasing factors in the textile industry in Georgia and Dan River has moved into Alabama in a big way. If you take these three companies, plus Avondale and West Point, out of those two states, you have drastically reduced the textile industry there.

What It Means

In the views of most men who have worked for both independent mills and the big corporations, there are advantages and disadvantages on both sides. One thing is certain: it's different.

One of the most drastic differences is that the corporations have developed a totally new type of textile operating executive: the professional manager.

To the textile man who grew up in an independent mill, the change to the professional-manager type of operation can be frustrating. Red tape can all but smother him. Committee decisions replace decisions by one or two men. Performance is judged in black and red figures. The "boss" becomes an organizational chart that men only move in and out of. Technical and engineering departments take over much of the know-how and responsibility (and decision-making) that the individual formerly executed.

But opportunities are greater. In most independent mills, the top job a non-owner-family man can hope for is plant superintendent. Many much bigger jobs are available in the big corporations, and advancement in position and income can be much faster.

But regardless of the differences or whether they're good or bad, they exist. And there is no question that the big corporations hold the future of the textile industry.

In the 1960's—

As more independent mills are acquired by the big companies in the 1960's decade, many present key mill men will find it hard to change their methods and outlooks to operate successfully in the corporations. In late years, we have known several overseers, superintendents, and managers who could not bring themselves to do so. In some instances, it was not their fault. In some, it was.

We're sure that every one of these men at some time had worked people who balked at job changes. Probably most of them had found it necessary to discharge workers who refused to accept changes. Yet in many cases they refused to make changes themselves when their turns came.

Usually, this kind of resistance indicates a lack of self-confidence. Often a man works for years in a given type of organization, learns how to cope with it, and wins some measure of success. A sudden change of the type of organization—with new pressures, new standards of performance, and new job competitions—can throw him for a loss. Instead of learning to roll with the new punches, he clams up and chooses to retreat.

Many such adjustments will be required as the big corporations continue their growth in the 1960's. Present key men in mills should expect them and try to be prepared for them.

A. M. Thomas

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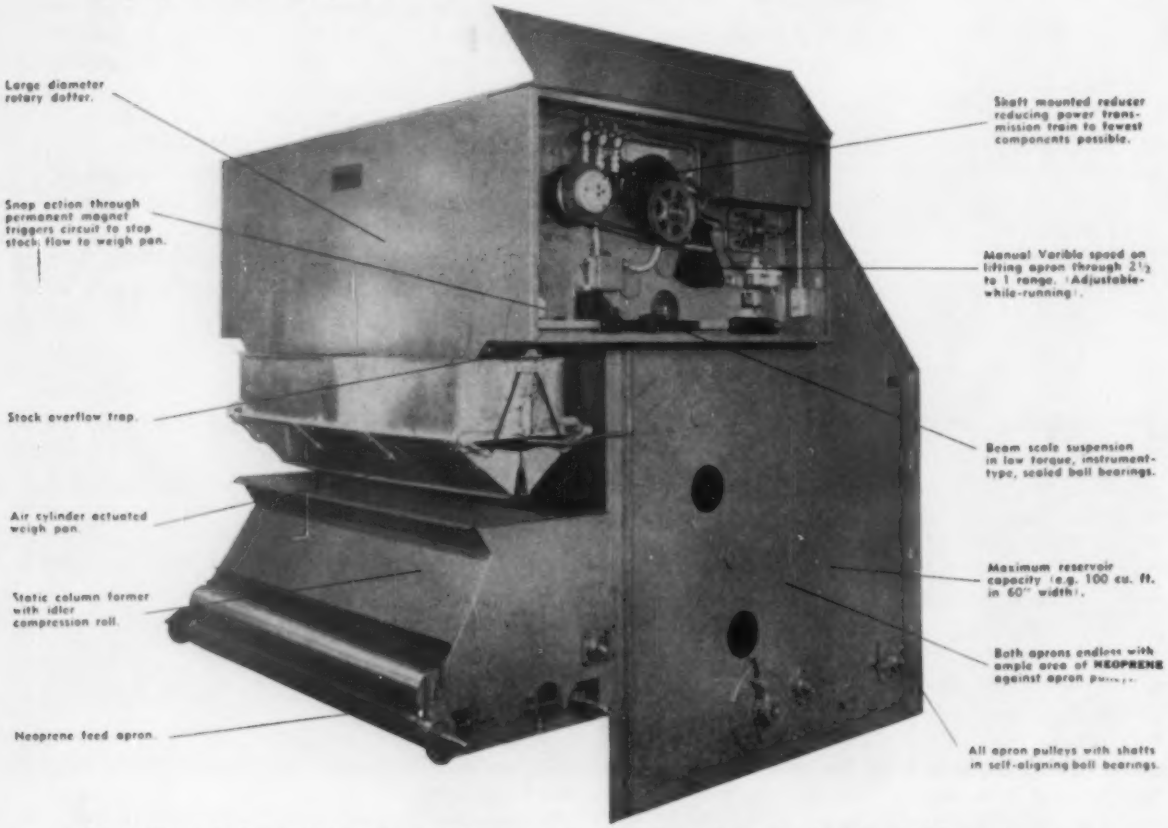
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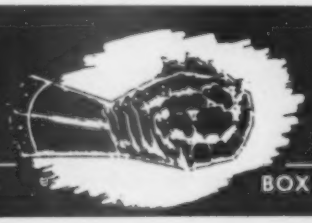


FIBER CONTROLS CORPORATION
BOX 1358 *GASTONIA, NORTH CAROLINA*

Textile World

Volume 110, No. 2, February, 1960

Mill Check-up—1

The Superintendent Inspects Cotton-Mixing Operations

The busy superintendent cannot personally inspect each machine and all its settings daily, but he can take a tour through the mill and watch out for danger signals. In the mixing department of the opening room, he should spot-check—

- **Open-bale heights**
- **Volume of stock in hoppers**
- **Type of waste produced**

By A. L. LANDAU

THE KEY TO THE SUCCESS OF MANAGEMENT in upholding standards of performance lies basically in the ability of the superintendent to analyze and appraise men and machines.

A good superintendent can walk casually through his mill and almost effortlessly make a rapid and significantly thorough check of every operation. He makes a point of visiting all departments at least once a day. He has trained himself to observe and notice the small symptoms that reveal the beginning of serious troubles at a later date.

Let's walk along with a good mill superintendent as he makes one of his daily trips and note just how he spots trouble and stops the making of seconds before any hint of a quality drop can be picked up by the laboratory.

Mix Is Checked

The superintendent's first stop is at the mixing department of the opening room. Here the stock is brought in and laid down before it is made into a mix for the feeders. The number of bales indicates whether the job is being done correctly. Raw bales should be laid down about three shifts before they are to be used so that they will have time to condition.

It's wrong to bring stock right out of the warehouse and process it without regard to its temperature and moisture content. Fibers that are cold and dry suffer an undue amount of breakage from opening, cleaning, and picking beaters. Even with properly conditioned stock, there is still an appreciable amount of fiber damage. Tests indicate that there can be as much as a 10% decrease in fiber length between the staple length in the bale and the finished picker lap.

The superintendent next goes back of the feeders, where a single look will show him if the feeder supply and make-up of the mix are right. Each feeder should be fed from six to eight bales of cotton. Two rows of bales behind each feeder, fed so that one row will be depleted when the other section is half used, assures a mix of two lots of bales at all times. With this system, there is never an abrupt change in the total mix, regardless of the character of the new lot brought in.

Bale Heights Give Clue

The clue to proper feeding is in the height of the individual bales. If the tender is feeding correctly, all of the bales in each row will be of the same height; uneven heights indicate that the operator is filling the hopper by taking large clumps from a single bale. Uneven feeding will not provide maximum blending or fiber-content consistency.

After observing the mix, the superintendent goes to the feeders and begins his machine check. His first stop is at the hopper. The appearance of the stock tells him a great deal about the manner in which the feeder is being used and whether or not it is being overworked. The amount of production per feeder is the initial key to well-opened and well-cleaned stock.

At the feeder, cotton is lifted up by the lifter apron and the excess is stripped off by the rake or combing roll and dropped back into the hopper. When low production is needed, the rake is set close to the apron and the stock is passed forward in small clumps. Better blending and cleaning result when the stock is in the hopper for a longer period of time.

There are several different ways of controlling production. The worst way is to increase the amount of stock passing through the feeder by widening the setting between the rake and the apron. Increasing this setting has the direct effect of increasing production because larger clumps of cotton are permitted to pass forward. But this condition means that the stock is not being broken up as well as it

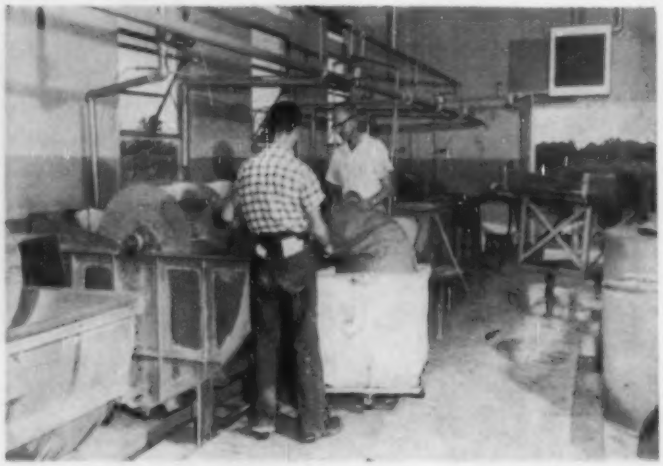
CONTINUED ON PAGE 154

Dyehouse Is Latest Addition

JIM VAUGHN, Villa Rica's secretary-treasurer, is the management spark that has doubled plant space. In his new office, one of several not quite completed, he's just a few steps away from production and general-office areas.

In a surge of building culminated with a completely new dyehouse, Villa Rica Hosiery Mills has doubled its floor area. In addition, much of the old building has been razed and rebuilt. Interior improvements are new—

- **Automatic knitting machines**
- **Looping, inspecting, and boarding machines**
- **Lighting with over 100 ft.-cs. in all areas**
- **Offices and furniture**



NEW DYEHOUSE just completed is Villa Rica's fifth major expansion in eight years. Processing includes bleaching and both vat and direct dyeing in a plant almost totally free of corrosion.

VILLI RICA HOSIERY MILLS, Villa Rica, Ga., recently started the motor on the last machine in its brand-new finishing plant. This new building is Villa Rica's fifth major addition in the last eight years. During this time, manufacturing and office space has been doubled.

Villa Rica, a 56-year-old company, manufactures men's and boys' plain and fancy socks and misses' anklets, with present production 11,000 doz. pairs per week. Yarns used are mercerized and carded cottons, cotton-nylon blend, elastic, and textured nylon. Sock sizes are: boys' up to 10½, misses' 6 to 11, and men's 10 to 13. At present, eight styles are being knitted.

Company Improves in Five Ways

But all of Villa Rica's recent improvements under the management of J. H. Vaughn have not been additions. His five-point improvement program has been to: (1) raise efficiency, (2) improve quality, (3) raise employee morale, (4) improve plant appearance to attract better workers, and (5) maintain and raise company and employee security.

As top management man, Secretary-Treasurer Jim Vaughn has a free hand under President E. T. Doyal. A few of the important accomplishments of his five-point improvement program are: repainted buildings in attractive, restful pastel colors; re-covered roofs, where needed, with chip-marble roofing; landscaped plant grounds; new concrete sidewalks and parking area; and new ceramic-tile smoking rooms.

There's also new well-programed music broadcasting throughout the plant and offices, interplant phone communication system, roof exhaust fans and floor fans in every mill department, new enlarged completely air-conditioned offices with new furniture, and a modern sprinkler system with the mill's private water supply.

Newer Knitting Machines Are Added

Other new projects completed are a machine shop, warehouse facilities moved to the plant, and boilers changed from coal fuel to automatically controlled natural gas.

In the knitting department, one part of the building was completely rebuilt. In the old section, a new hardwood floor was added.

Modern lighting was installed throughout the knitting department. Two rows of 8-ft. fluorescent luminaires are hung over each line of knitting machines. Cool-white tubes give constant 112 ft.-cs. of illumination at every point of the machines and at the center of aisles between machines.

Forty-three old knitting machines were removed; and 107 modern machines with automatic ribbing attachments were added in 48, 36, and 18 gauge.

With the new automatic knitting machines, knitters tend

In Knitting Mill's Expansion

25 machines and fixers maintain 37 to 38 machines at 200-rpm. machine speed.

The knitting room is operated three shifts, and all other mill departments are run only one shift.

In the looping department, 33 new looping machines and pneumatic inspecting and turning machines were installed.

New fluorescent lamps in looping give a constant 105 ft.-cs. at the looping position. These lamps were installed by lowering them until glare appeared, and then they were raised until the glare was eliminated. Tubes with a red tint improve seeing here.

Boarding Is in a New Building

The boarding department is in a new building. All bin storage in boarding was replaced with movable carts. This department was enlarged, and a new boarding machine was added. Preboarding is successfully eliminated, and internally heated boarding forms use 35-psi. steam pressure.

New 8-ft. luminaires in the boarding and boxing departments are arranged in squares. With this arrangement, pairing, inspecting, and packaging tables can be positioned in any way desired with 100 ft.-cs. of illumination at all points.

The boxing department is equipped with the latest type of packaging equipment with supply bins within arms' reach of employees. A new print shop has new printing machines for labeling packages.

MACHINE MAINTENANCE is important in Villa Rica's quality-control program. This machine pulled from the production line is being checked by Superintendent Paul Newman as it's changed from automatic dial to a mesh pattern.

BOARDING is in a new building with all storage in movable carts. Fluorescent luminaires arranged to form squares give 100 ft.-cs. of illumination here and in the adjoining boxing department.

One of Villa Rica's unusual manufacturing practices is that no regular employee is allowed to touch off-quality fabrics after they have been graded as seconds. These imperfect socks are taken to a separate department where they are packaged and shipped.

New Dyehouse Resists Corrosion

The modern dyehouse just completed was rebuilt in the same position of the razed older building. Floors and walls are concrete to prevent corrosion. Roofs are corrugated asbestos. The only part of this building that's not corrosion resistant is the sprinkler system; but it's painted with corrosion-resistant paint, which will be renewed once each year.

Villa Rica has also installed adequate fluorescent lighting in this building, but during an average day it isn't needed. Six skylights of glass-fiber-reinforced plastic are built into the roof as an integral part, and they supply good illumination since the finishing department is operated only on one shift.

All machines in finishing were converted from overhead-shafting drives to individual-motor drives. Five new rotary dyeing machines and hot-air tumblers for drying were installed.

Approximately 90% of Villa Rica's production is white socks, and exact processing methods in bleaching obtain a snow-white shade.

All popular colors are dyed too, but heavy production in dyeing is seasonal. Standard bleaching and dye lots are 100 lbs. of gray stock, and orders are usually handled in 30 doz. pairs.

Both bleaching and dyeing are done in the rotary-type dyeing machines.

The bleaching process for 100 lbs. is:

Goods are dumped into the dyeing machine. Then 1 qt. of penetrant oil, 3 lbs. of scouring agent, and 1 lb. of hydrosulfite are added. The machine is filled with 250 gals. of room-temperature water.

This bath is raised to a boil and is then run 10 mins.

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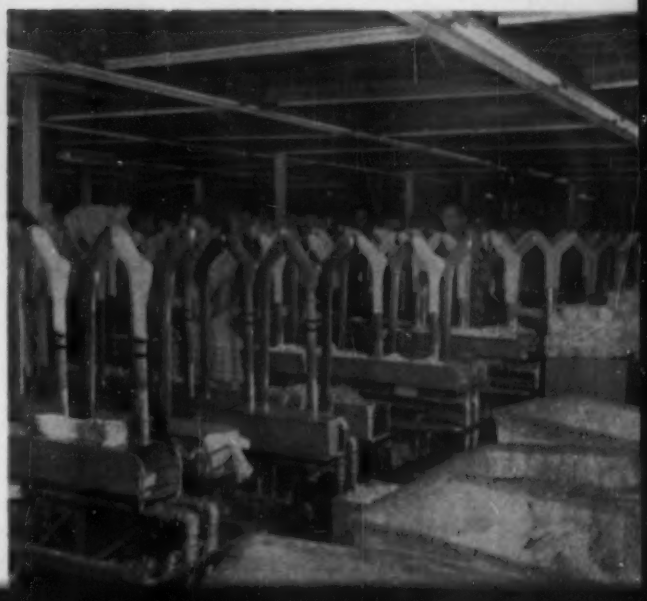


Four Ways To Measure Cotton-Yarn Strength

- Breaking strength of yarn based on short-length laboratory tests does not always give a true picture of potential end breakage in the mill. Weak places often show up in longer lengths of yarn under tension at certain processes such as warping.
- There are several accepted methods of testing yarn strength in the laboratory, and all of them have their uses. The pros and cons of each method, as set forth here, may help you select the best method of testing yarn strength at your mill.

By N. H. POMFRET

OVERSEERS AND SECOND HANDS sometimes distrust the yarn-strength figures given them by the mill laboratory, especially when only average strength figures are given. But supervisors must not forget that half the yarn breaks occur at tensions less than the average laboratory strength.

This condition would not be so if the length of yarn under tension were the same in the mill as it is in the laboratory. But in the mill, very long lengths are often under tension. For example, in warping where 100-in. lengths under tension are not uncommon, the average strength of the yarn may be only half that of the laboratory yarn.

What Does Skein Strength Prove?

To judge the strength of a yarn, cotton spinners usually wind 120 yds. onto a reel 54 ins. in circumference and test the strength of the skeins thus formed. It has been said that the skein strength of the yarn is meaningless and unscientific. Nobody seems to know exactly what this usually accepted method of measuring quality does measure.

The system certainly does not measure the average strength of the individual strands of the skeins. Neither

Influence of Length and Variability on Yarn Strength

	Coefficient of Strength Variation (%)				
	10	12.5	15.0	17.5	20
Ratio of processing length to test length	Yarn strength as percent of test-length strength				
1.0	100%	100%	100%	100%	100%
1.5	95.7	94.6	93.6	93.1	92.4
2.0	94.4	92.9	91.5	90.1	88.7
2.5	93.0	91.2	89.5	87.7	86.1
3.0	91.6	89.6	87.5	85.5	83.6
3.5	90.3	87.9	85.6	83.3	81.1
4.0	89.0	86.4	83.7	81.2	78.7
4.5	87.8	84.8	81.9	79.1	76.0
5.0	86.5	83.3	80.1	77.1	74.1
5.5	85.1	81.7	78.3	75.1	71.9
6.0	84.0	80.3	76.6	73.2	69.8
6.5	82.8	78.8	74.9	71.3	67.8
7.0	81.6	77.3	73.3	69.5	65.8
7.5	80.4	76.0	71.7	67.7	63.8
8.0	79.3	74.6	70.5	65.9	61.9
8.5	78.1	73.2	68.6	64.2	60.1
9.0	77.0	71.9	67.1	62.6	58.3
9.5	75.9	70.6	65.6	61.0	56.6
10.0	74.8	69.3	64.2	59.4	54.9

AVERAGE YARN STRENGTH of actual lengths under tension in the mill can be calculated from this table by following directions given in the text.

does it give the lowest or the highest strength of the strands, nor can the average strength of the individual strands be accurately calculated from the strength of the skeins. And since yarn is seldom processed in the form of a skein, of what practical use is the strength of the skein?

The skein method of strength testing has been in use for a long time, and from it much data relating to processing has been obtained. The skein-break test, at best, gives a result that may be compared to other yarns that have proved acceptable. However, there are occasions when a yarn with a higher skein strength than average behaves badly during processing.

The advocates of single-end testing point to such instances and suggest that it is time cotton spinners become scientific and realize that custom alone is responsible for the continued use of the skein test. The implication is that the single-end test is superior. But this assumption remains to be proved.

There is no doubt the skein-strength test has many faults, but it also has some advantages over the single-end test, which may keep it in use for a long time to come. Advantages are:

1. A comparatively long length is tested.
2. Sampling error is small compared with the single-end test, especially when number-strength product is used.
3. Yarn number is easily determined from the sample.
4. Universal popularity.

Single-End Test Can Mislead

It is customary in single-end testing to take a number of 10-in. lengths of yarn and break them. This gives the strength of the weakest parts of the 10-in. lengths. Since all yarn is irregular in cross section, yarns consist of a series of thick and thin places. These places correspond for all practical purposes (except in soft-twist yarns) to a series of strong and weak points in the yarn.

If it is true that yarn breaks at its weakest point, then 9 of 10 consecutive 1-in. lengths have higher breaking strengths than that of the entire 10-in. length. From this reasoning, it is obvious that the strength of a yarn depends upon the length tested and the frequency and extent of the weak places. Thus, yarns with different degrees of irregularity may have the same strength at one test length and an entirely different strength at another.

L. Gossens, as a result of his investigations of yarn strength, gives the following formula for calculating strengths when the test length is increased twofold and threefold:

$$\frac{F_2}{F_1} = 1 - \frac{CV}{\sqrt{2}}$$

$$\frac{F_3}{F_1} = 1 - \frac{3\,CV}{2\sqrt{2}}$$

Where:

F_1 = strength for basic test length
F_2 = strength at twice the test length
F_3 = strength at three times the test length
CV = coefficient of variation expressed as a fraction

The accompanying table, based on Gossens' formula, illustrates the effect of yarn irregularity on strength where different test lengths are used. Here's how to use the table:

Assume that the laboratory reports that a given yarn has a single-end strength of 6 oz. and a CV of 15% when the test length is 10 ins. If the length under tension in the mill is 90 ins., this figure is nine times the test length. Under the 15% column opposite 9.0 at the extreme left, the number is 67.1. The average strength at this length is

$$6 \times \frac{67.1}{100} = 4 \text{ oz.}$$

It should be clear from the foregoing that the average single-end strength of a yarn alone is of little value in judging processing ability. Even if enough tests are made to calculate the CV with the required degree of accuracy, consideration would have to be given to the processing yarn length under tension compared to the test length.

Ballistic Test Checks Toughness

About 30 years ago, when the skein test was under severe criticism, the ballistic method of testing achieved some support as an alternative testing method. This method measures the toughness of yarn. Toughness is the force needed to break yarn or the ability of a yarn to resist tension and extension.

It was claimed that in practice most yarns broke as the result of a jerk and that the ballistic tester could measure easily and quickly the amount of energy needed to break yarns in this manner. Results of the test were said to have an exact and scientific meaning. Other advantages claimed were that a skein was used as in skein-strength testing and that the tests could be carried out quite rapidly. At the time, other industries were using the test and had found it useful.

Even with all these advantages, the test did not supersede the skein test, mainly because it did not rank yarns the same as either the skein test or the single-end test. Another reason is that the skein- and single-end tests give reasonable agreement with each other when enough tests are performed. And with cotton yarns, results from the ballistic tests are greatly affected by the relative humidity of the atmosphere since both the strength and extension at the break increase with increasing humidity.

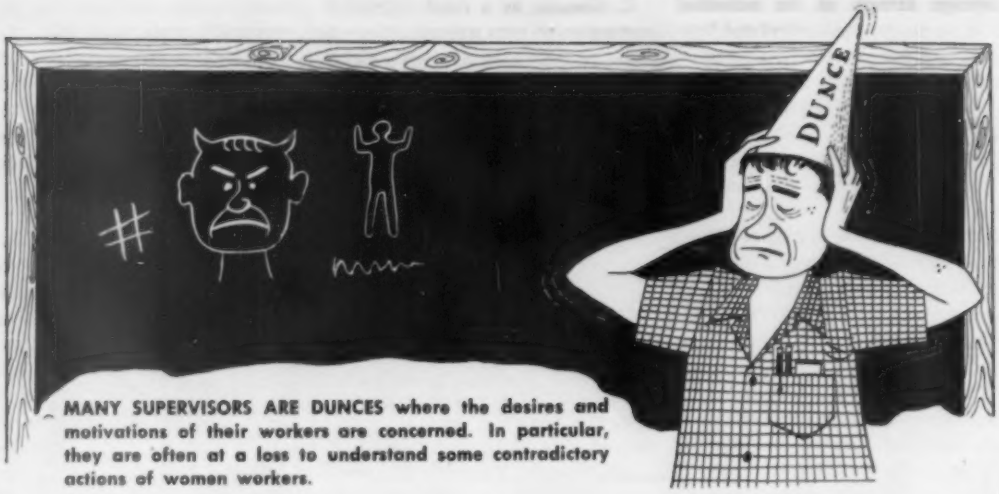
But these facts do not mean that the ballistic test is useless. It is still a good test and perhaps could be used more advantageously now than formerly. Controlled-humidity laboratories, an engineering approach to textile manufacturing, and the increasing number of man-made fibers may see an increasing use for this test.

Continuous Test Offers Promise

Since yarns are never processed under tensions anywhere near their average strength, yarn manufacturers are not too concerned about actual breaking strength. Their chief interest is in the number of weak places in the yarn, which they claim is a much better measure of processing ability than breaking strength of short lengths. One method of checking weak places is to continuously check single ends of yarn.

This method, although not new, is becoming more popular for single-end testing. By winding long lengths of yarn from one package to another and subjecting it to a definite tension, much lower than the average strength, the test determines the number of weak places in the yarn. Once standard testing tensions are established, long lengths of yarn can be tested quickly and cheaply.

Another advantage is that the labor involved in the statistical treatment of the test results is much reduced, and reporting is simpler and more accurate than reports required for the single-end tests. This aspect of the test is important because unnecessary and involved statistical treatment is just as wasteful as unnecessary testing.



MANY SUPERVISORS ARE DUNCES where the desires and motivations of their workers are concerned. In particular, they are often at a loss to understand some contradictory actions of women workers.

How To SUPERVISE WOMEN

- Do you have more trouble with women workers than you do with men? If so, it may be because you try to treat men and women alike
- Most women workers don't expect special treatment, but they do want to be treated with respect and consideration

By WILMER C. WESTBROOK

WOMEN ARE BETTER THAN MEN on jobs that require dexterity and repetitive motions. Among these jobs in the mill are spinning, spooling, filling batteries, and cloth inspecting.

STRAINED RELATIONS OFTEN RESULT when women are placed in a predominantly male work group. The personal feelings of the woman worker must be respected.

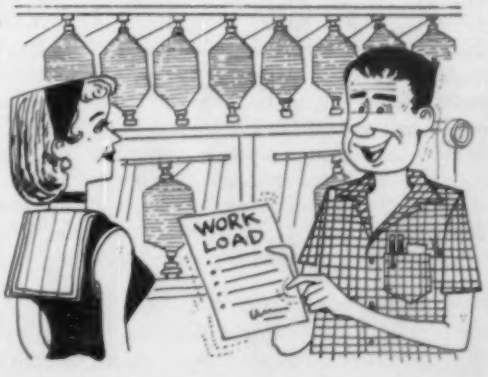
FEELINGS MUST ALSO BE CONSIDERED when instructions are given or disciplinary action is taken. Women are sensitive and must be handled with tact and diplomacy.

GROUPS AND CLIQUES are always formed among women workers. When one member of a group has a grievance, it is usually taken up by all members of the group.

EACH GROUP HAS A LEADER, usually an older woman that the others like and respect. The smart supervisor learns who the leaders are and enlists their aid.

PROBLEMS OFTEN ARISE that young women, especially unmarried ones, do not care to discuss with a man. In such situations an older, more-mature woman can act as a go-between.

THE AID OF THE OLDER WOMAN or group leader can also be enlisted to help explain some phases of company policy or rules that are misinterpreted by women workers.

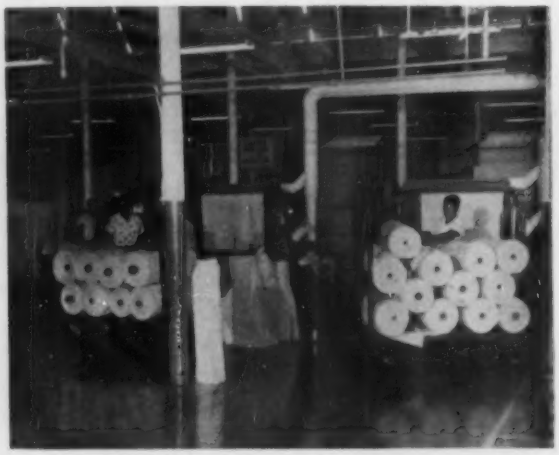


SUPERVISORS WHO RECOGNIZE THE NEEDS and desires of women employees will find that common sense, tact, and fairness are the prime requirements for managing them.

Two Revamped Cloth Rooms Reduce Mill Seconds

• Arkwright Mills has improved quality with two completely revamped cloth rooms.

ELECTRONIC COUNTERS at four folders are typical of Arkwright's controls at many points of machine operation. The folder stops at any desired yardage.



PRODUCTION LINE starts with a stitcher; then there's a brusher, vacuum system to remove lint, a scray, and a rolling machine. An electric eye controls stops.

EFFICIENT METHODS OF PRODUCTION appear at almost every point of operation in two cloth rooms recently revamped at the No. 1 and No. 2 plants of Arkwright Mills, Spartanburg, S. C. A second important phase of Arkwright's program is electronic controls.

Arkwright Vice President C. B. Hayes, Jr., says "Our electronic controls eliminate the tedious and wasteful task of waiting; and now employees spend their time in the more-interesting and useful tasks of actually producing inspected and graded fabric."

Another important feature at Arkwright is smooth, straight flow of fabric throughout both cloth rooms. In plant No. 1, the building is nearly square and cloth flow is U-shape. In plant No. 2, the building is long and narrow and cloth flows in a completely straight line.

Basic Layouts Keep Fabrics Moving

But the layout of the two cloth rooms is basically the same in that fabric continuously flows toward the shipping point.

Results of more-efficient methods, electronic and mechanical controls, and better layout at Plant No. 1 are: (1) 400,000 yds. of fabric are inspected and graded each week and (2) over-all second-quality cloth has been reduced by daily reports to department heads.

Before the revamping program, each cloth room had machines in unplanned positions following several years of expansion. Overhead drive shafting and belting were common, and there was much manual handling of fabric.

Both cloth rooms were run at full capacity on the first shift, and a skeleton crew of approximately one-third the first shift was needed on the second shift.

With the new layout, all machines are driven by individual motors, there's practically no manual handling, and only one shift is needed.

At Plant No. 1, cloth is doffed from 668 looms by a 40-hr. doffing cycle in the weave room. Fabrics are drills and twills of 13s to 17s carded cotton. Rolls of cloth average 200 wds. each.

A rider-type electric truck is used to carry doffed cloth from the weave room to the cloth room with the cloth still on the weave-room truck. These trucks of cloth are stored just inside the cloth-room entrance well out of the way of traffic until they are needed.

Machines Join for One Operation

Formerly three stitchers and cloth scrays were needed. Now there are only two stitchers in combination with

scrays, a vacuum-removal system to remove lint at brushers, and rolling machines.

An electric eye stops this machinery line at thin places in fabric wider than 2 ins. This control makes it possible to follow the weave-room doffing cycle completely because break-outs in the fabric, knots from tying in, and other such defects are not doffed at the loom but are cut out at the stitcher.

The multiple rolls of cloth from the rolling machine usually consist of six weave-room rolls, and they are doffed with a monorail hoist. They are distributed to 10 inspecting machines as they are needed. There's a steel rack back of each inspecting machine that holds two of the multiple rolls of cloth. Fabric is inspected from one roll, and the second is ready to join onto the first as it runs out.

A mechanical control with a tension spring keeps each roll of fabric at the same predetermined tension all the way through the build-up as the roll runs over the machine.

Inspecting Methods Are Better

Fabric runs from the multiple rolls up almost to the building ceiling and then down at a right angle to the inspecting machine. Lamps behind a glass frame at each machine show all fabric defects. Then the inspector stops each defect within easy reach on an inclined surface of the machine.

The inspector inspects the fabric 2 yds. ahead of the stopping position. Therefore she has a chance to inspect it both against a lighted background and the black inclined surface. And since the fabric is always moving toward her, she sees it better.

Inspectors Keep Weavers Informed

Inspectors burl small gouts, jerk-backs, and similar minor defects. They tag larger defects with a needle and twine. Each roll of cloth is inspected by loom number with a defect checklist showing all the common cloth defects. Checklists of looms making seconds are sent to the weave room immediately.

Each inspecting machine has two yardage counters: one for each day's total yardage inspected and one for the yardage of each roll of cloth. The inspector marks the total yardage of each roll inspected at the end of the roll.

Inspected rolls of cloth are again wound to multiple rolls as they are inspected, this time at the back of each inspecting machine. Then they are removed with the monorail hoist.

At this point of procedure, fabrics start the turn of the U-movement by being taken to one of four folders.

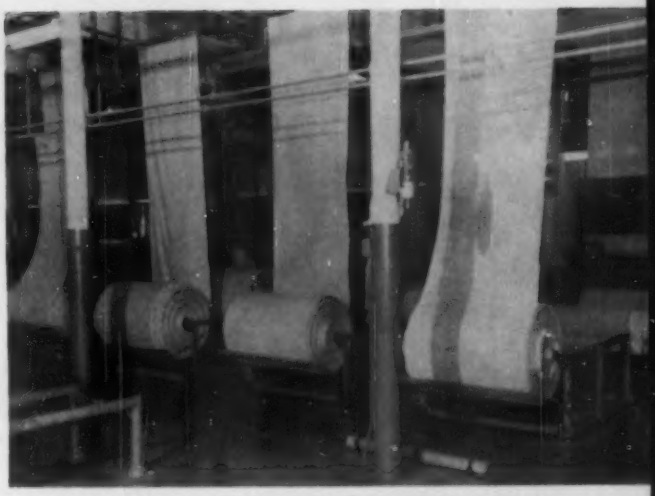
Electronic Counters Set Yardage

An electronic yardage counter that stops automatically at any set predetermined yardage is on each folder. When a folder operator checks the over-all yardage of each roll of cloth marked by the inspector, he sets the counter to stop at any yardage he needs to eliminate short cuts.

Fabrics of some styles are cut at the folder either in single cuts of approximately 40 yds. or double cuts of 80 yds. as determined by the customer. So if the operator has a 200-yd. roll of cloth, he can cut it into five 40-yd. single cuts by setting the counter.

In addition to stopping at predetermined counter settings, the folder stops at seams to eliminate short lengths.

A second method of folding and cutting other fabric styles with the electronic counter results in longer lengths of cuts so that graders can cut the fabric again to remove defects. This method, for example, makes two cuts of cloth at the folder from a 200-yd. roll of cloth.



HOIST MONORAIL handles large multiple rolls of fabric without physical handling. There's always a stand-by roll at each inspecting machine when it is needed.

Workers Do the Job More Easily

With the old method of watch-and-wait, four folder operators had to constantly tend the folders. Now only two operators do the job much more easily.

The folder operator takes cuts of folded cloth and places them on a table back of each folder within easy reach of the operator. Then each roll is graded by the inspector tags. The grader washes out stains or further cuts the cloth to the desired length.

The biggest cost advantage of the new cloth-room layout is that inspection and grading are much tighter. Arkwright uses the modified point system of grading that's based on old Government standards of grading twills and drills.

CONTINUED ON PAGE 155

FABRIC AT INSPECTION is always moving toward the inspector. This method lets the inspector see more than the old way of having fabric move away from her.

Easy Way To Control Variation in Twister Tension

• Control limits for twister tension can be determined statistically by translating actual tension measurements into standard deviation from the mean and plotting the results as a bell-shape curve. The mathematics are simple. Here's how to do it in six easy steps—

By D. H. DENHOLM and J. C. SMITH, JR.
Chase Bag Co., New Orleans, La.

Step 1

TENSION on twisters is measured with a tensiometer, and the readings are recorded daily.

TENSION IS A CRITICAL FACTOR in many textile operations, especially at twisting and winding. Too little or too much tension can be disastrous. Somewhere in between is a normal working level with limits beyond which corrective action should be taken.

An easy way to find tension limits for twisters is shown step by step on these pages. The calculations are based on tensiometer readings made as illustrated in Step 1 and recorded in Step 2.

Step 3 shows how to calculate standard deviation in six steps by using a simple formula. In Step 4, the rough data from Step 2 are translated into seven columns of figures to be applied to the deviation formula shown in Step 5.

In Step 5, Formula A is used to determine standard deviation and mean. To find the maximum point of deviation, as illustrated by Formula B, multiply the standard deviation by 2 and add the result to the mean. To find the lowest permissible tension, make the same multiplication and subtract the result from the mean.

In Step 6, the range of readings is visually illustrated by easily recognizable bell-shape curves that demonstrate how most of the readings tend to gather around the central point. Plus or minus one standard deviation from the mean covers 68% of the cases, and plus or minus two deviations covers 95% of the cases.

In this example, the limits are set at two deviations (2 sigma). Any reading that falls out of these limits is a normal deviation only 5% of the time and is usually caused by outside or unusual influences.

Once acceptable limits are established, it is well to issue instructions to the foreman along these lines:

"Continue to take readings on at least one frame each day. Stop any spindle that has tension out of limits. Dismantle, change belt, change ring, oil, and clean the spindle. Report before-and-after readings to the superintendent each time a spindle is worked on."

Step 2

TOTAL OCCURRENCES are checked on this form and used in computing the mean and standard deviations.

Twister tension in grams — Date 1/19/60 — Checker R.A.C.

125 to 149	150 to 174	175 to 199	200 to 224	225 to 249	250 to 274	275 to 299	300 to 324	325 to 349	350 to 374	375 to 399
	𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 III	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 III	𝍸 II 𝍸	𝍸 III	𝍸	III
Total occurrences → 65	274	420	318	291	231	139	67	13	3	

Formula for Simple Standard Deviation

1. Find the mean $M = \frac{\Sigma X}{N}$
2. Find the deviation of each score from the mean $x = (X - M)$
3. Square each deviation x^2
4. Find the sum of the squared deviations Σx^2
5. Divide the Σx^2 by N to find the variance $v = \frac{\Sigma x^2}{N}$
6. Extract square root to find the standard deviation $SD = \sqrt{\frac{\Sigma x^2}{N}}$

Where:
- M = mean
- Σ = sum of
- X = each individual score or measure
- N = number of scores or measures
- x = deviation from mean
- v = variance
- SD = standard deviation

Step 3

STANDARD DEVIATION can be calculated in six easy steps by using this formula.

Summary of Calculations for Standard Deviation

(1)* Tension (grams)	(2) Mid-point	(3) Mid-point −162	(4) f	(5) x′	(6) fx′	(7) fx′²
375 to 399	387	225	3	9	27	243
350 to 374	362	200	13	8	104	832
325 to 349	337	175	57	7	399	2,793
300 to 324	312	150	139	6	834	5,004
275 to 299	287	125	231	5	1,155	5,775
250 to 274	262	100	291	4	1,164	4,656
225 to 249	237	75	318	3	954	2,862
200 to 224	212	50	420	2	840	1,680
175 to 199	187	25	274	1	274	274
150 to 174	162	0	65	0	0	0
Total (Σ)			1,811		5,751	24,119

* Numbered columns contain the following information: (1) tension intervals, (2) mid-point of each interval, (3) mid-point minus lowest interval mid-point, (4) frequency occurrence of each tension measure, (5) coding procedure (divide each figure by 25 to reduce figures to workable form), (6) product of f and x′, and (7) product of x′ squared and f.

Step 4

ROUGH DATA from Step 2 are translated into figures that can be applied to the deviation formula.

Calculation for Control Limits of Twisters

Formula A

$$M = 162 + \left(\frac{5,751}{1,811}\right)25 = 241$$

$$\Sigma X^2 = \left[24,119 - \frac{(5,751)^2}{1,811}\right]625 = 3,660,125$$

$$SD = \sqrt{\frac{3,660,125}{1,811}} = 44.97$$

Formula B

Mean + 2 (standard deviation) = top limit

or

241 + 2 (44.97) = 331

Mean − 2 (standard deviation) = lower limit

or

241 − 2 (44.97) = 151

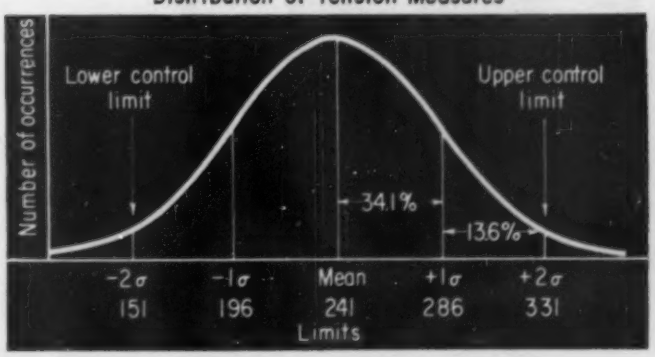
Step 5

DATA from Step 4 are applied to the deviation formula to give standard deviation as shown in Formula A. Maximum and minimum tensions are determined by using Formula B.

Step 6

BELL-SHAPE CURVE illustrates visually that most readings tend to gather around the central point.

Distribution of Tension Measures



How Woonsocket Controls Yarn Quality and Production

Woonsocket Spinning Co., producer of fine woolen yarns, keeps a close watch on quality by—

- **Testing all fiber before processing**
- **Using quality checklists at every operation**
- **Maintaining rigid standards in all departments**

"RIGID QUALITY AND PRODUCTION CONTROL has made it possible for our mill to increase sales and reduce cost of spinning custom yarns for use in luxury fabrics," says James D. Gartsu, executive vice-president and general manager, Woonsocket Spinning Co., Woonsocket, R. I.

At Woonsocket, quality control frequently begins before the wool reaches the mill. Wool purchased in the grease and scoured by commission firms is processed under rigid specifications set up by the spinning company.

Each lot is coded and tested as soon as it enters the storage department. Two samples are taken from each bag. One sample goes to the laboratory and the other is sent to the manager's office for inspection. Tests given the lab sample include the micron test for fineness and a dyeability test. The wool is inspected for evidence of coarse black hair or other contaminants, and staple length is checked.

In addition to running 100% wool stock, Woonsocket processes blends of wool with vicuna, cashmere, angora, camel's hair, alpaca, man-made fibers, and fur. All these materials receive a close scrutiny in the laboratory to make sure of purity, quality, and proper proportion if blended. For example, the caustic-soda test is used to check on wool and man-made-fiber blends. Other fibers are checked visually and under the microscope.

Blends Are Made at Picker

If the quality of the wool and other fibers is found to be satisfactory, the stock is sent to the picker room for mixing and blending. The sandwich method of blending is used.

Wool mixes are put through the picker at 2,000 lbs. per hr. and blown to a special condenser from which the air is exhausted in such a way that the wool fibers are prevented from separating.

The mix is put through the picker three times to assure even fiber distribution. The stock is then stored in paper-lined bags and kept under 55% r.h. until ready for further processing. Acual moisture content of the fiber is 10 to 12%.

The control form used in the picker room includes this information: lot number, pounds, time stock is brought into the room, time stock is laid down, time each of the three passes through the picker is started, type of blend, time sent to the bag room, and time the picker is cleaned.

Card Speeds Are Standard

The stock next goes to the carding department, where it is processed at standard speeds. The company recently installed six new 72-in. card sets that handle 160 and 176 ends. These cards have V-belt drives on the strippers and from the motor to the countershaft. A silent chain drive is used from the countershaft to the cylinder. On the first breaker, a P.I.V. drive eliminates stopping the card for gear changing. The condenser also is equipped with a P.I.V. drive to provide greater flexibility of operation.

The standard five-end test is made six times every 8 hrs. In addition, every roving from one spool per card is tested for variation. For 5-run yarn, variation is less than 5%; 12% is considered a good average standard. The ends to be tested are cut off the spool, as illustrated in one of the accompanying photographs, and are weighed in the laboratory.

The form used for reporting this end-to-end test shows the lot number, card number, spool number, size, standard grain, and color. Weight of each end is recorded from left to right on a special section of the form where there is space for 44 recordings. High and low weights are listed.

The form used for recording the routine carding operation includes yarn size, date, hour the machine is started and stopped, hours run per shift, and frequency of grinding, stripping, and cleaning. Stripping is done by hand.

CONTINUED ON PAGE 156

ROVING is cut off spool, and each end is tested for weight and size variation.

DYED SAMPLES are kept several years in lightproof boxes for control purposes.

Mid-South and California Produce Good 1959 Cotton

- In the Mid-South cotton belt, fiber and spinning tests on 1959 cotton show that in comparison with 1958 pickings nearly all properties are better because of favorable weather and improved ginning methods.
- In California, growers made another good crop in 1959. Break factor is up, yarn appearance is better, and manufacturing waste is down to the lowest point in five years.
- In both areas, mechanical harvesting is on the increase and ginners are being more careful about overcleaning and overdrying.

By **F. L. GERDES,** Cotton Technologist, USDA, Retired

Mid-South Cotton

In contrast to the bad cotton seasons of 1957 and 1958 in the Mid-South, the 1959 season was characterized by excellent weather that permitted rapid harvesting of a good-quality crop. About three-fourths of the crop was harvested by November, and the baleage was double that of the previous year.

This speed-up in harvesting was caused in part by the increased use of mechanical pickers. At least three-fourths of the Missouri crop and one-half of the Delta crop were harvested mechanically. A bigger proportion of Arkansas and Louisiana cotton was machine picked, and for the first time mechanical pickers made their appearance in Tennessee in substantial numbers.

Cotton gins were taxed to capacity and had to operate around the clock last fall because of the rapid rate of harvesting of machine-picked cotton. But despite this rush, ginners produced good grades of cotton without any sacrifice of fiber properties.

Based on data from USDA cotton fiber and spinning tests

Moisture Content Is Higher

Moisture tests made on lint in gins throughout the Mid-South states showed an insignificant quantity of overdried cotton; over 90% of the cotton tested 5% or higher in moisture content. Actually, some cotton was underdried from a grade-producing standpoint by ginners eager to avoid overdrying and overmachining.

There was a great increase in the use of moisture testers in gins, and many ginners went to double or tandem cleaning to improve grades. Practically all Louisiana and Missouri gins now use two lint cleaners. In the other states, this type of cleaning ranges from about 80% in Mississippi to 90% in Arkansas. About 3% of all Mid-South gins have facilities for triple lint cleaning.

Grades Are Better

All areas of the Mid-South produced as good or better grades of early-season cotton in 1959 as in 1958. Unusually good grades were made in Louisiana. In 1959, early-season lots averaged SLM + in the Mississippi Delta and in northeast Louisiana, much higher than in 1958.

In the other areas, 1959 grades were comparable to those produced in

CONTINUED ON PAGE 157

Mid-South Cotton

Properties	Season 1955	1956	1957	1958	1959
Grade index	101 (M)	101 (M)	98 (M)	96 (SLM)	99 (M)
Staple length (1/32 in.)	34.2	34.0	34.5	34.2	33.9
Uniformity ratio	79	80	80	78	80
Micronaire value	4.4	4.3	4.6	4.4	4.5
Maturity (%)	78	78	79	78	80
Tensile strength (1,000 psi.)	80	83	76	78	78
Manufacturing waste (%)	8.5 (M)	8.0 (M)	8.1 (M)	8.0 (M)	7.4 (SM)
Neps (per 100 sq. ins. of card web)	11	12	12	15	11
Yarn break factor	2,370 (1 1/16 in.)	2,360 (1 1/16 in.)	2,200 (1 1/32 in.)	2,150 (1 in.)	2,170 (1 1/32 in.)
Yarn-appearance index	104	103	101	95	100

EARLY-SEASON COTTON averaged SLM+ in several Mid-South states. Uniformity ratio was normal, Micronaire values were better, maturity and tensile strength were higher, and manufacturing waste was down.

A Guide to MILL BUILDING in the '60s

A round of modernization and expansion started in the textile industry last year. For the first time in nearly a decade, mills are enjoying a growing market and can finance wide-scale improvement.

With mill production reaching toward the all-time high, many mills are finding themselves hemmed in by lack of floor space for expansion or by floor space physically unsuited for modern equipment.

The need for new mill building is extensive now and is rapidly increasing. A significant rise in construction, both for new plants and for expansion of existing plants, is expected in the 1960's.

•

But buildings cost money. As shown by the chart below, building costs have more than doubled since World War II and have been rising without a significant break since 1950.

And buildings don't produce a product for sale; they are an expense. Wrong decisions about building investment have pushed many companies to the wall.

In weighting a decision about floor space, a mill should keep these points in mind—

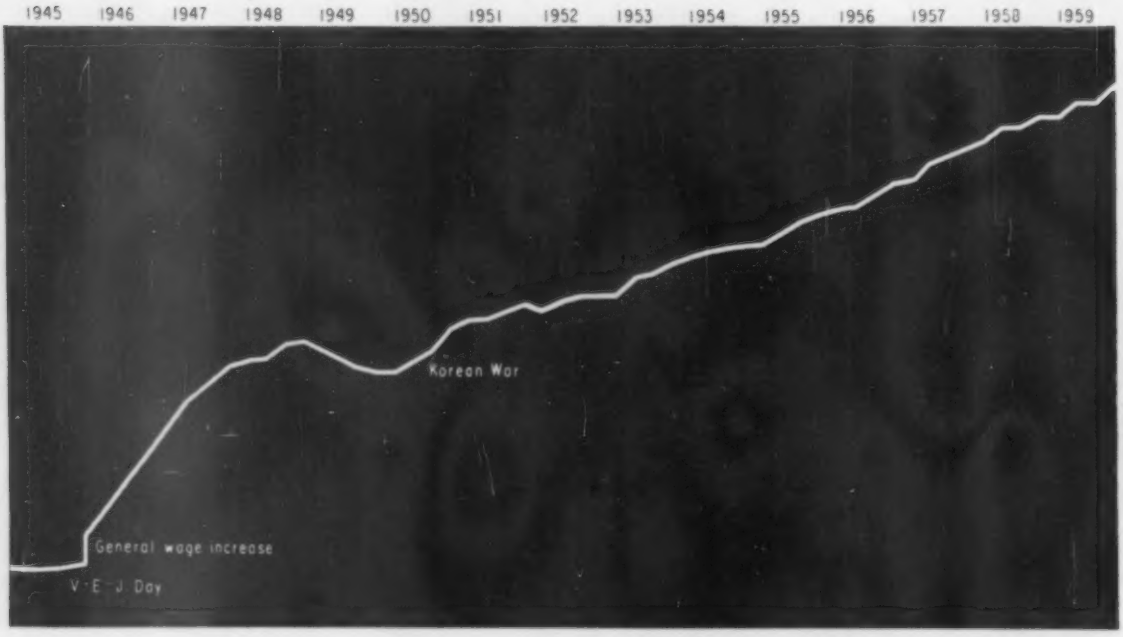
- The building itself contributes heavily to over-all manufacturing costs. Limitations of the physical layout can sharply increase labor costs and wreck production efficiency.
- Location of the plant is a complex problem, but it can be the difference between profitable operation and liquidation.
- Design and construction are as highly skilled and specialized knowledge as mill operation itself and should be approached with extreme care.

•

In this special report on Mill Building in the '60s, the editors of TEXTILE WORLD present the most up-to-date information obtainable that can be of some guidance in the planning stages of the mill-building problem.

The report covers such subjects as—

- The relation between the physical building and manufacturing efficiency
- Plant selection
- Building costs
- Layout for high production and low manufacturing and maintenance costs.



BUILDING COSTS more than doubled in the '50s and are still rising.

Background Development—

Mill-Production Needs Determine Building Trends

• The modern single-story mill building is a result of constantly changing machines and equipment. These changes were based on broad economic conditions that will also control the form of the mill of the future.

By A. D. ASBURY, Vice President
J. E. Sirrine Co., Engineers

Today's windowless, one-story, air-conditioned buildings with insulated walls and roofs are made possible by new materials, tools, and equipment modified for this particular purpose.

New developments within the textile industry itself dictated some changes, and equally radical changes were made possible by developments in other industries. Broad economic trends and principles are also governing the shape and character of mill buildings.

New Machines Brought New Buildings

The new concept of single-story construction was primarily instigated by the introduction of the high-speed loom between World Wars I and II that brought serious vibration trouble to multistory buildings with looms on upper floors.

To eliminate vibration, many older mills were strengthened by interior bracing and by heavy concrete piers against side walls. These braces and piers only partially relieved the trouble, and continued vibration and cracking of walls showed the need for more rigid construction and for keeping all looms on the first floor and on grade wherever possible.

About this same time long-draft wide-gauge spinning and roving, and the eliminating of processes, upset the balance of floor space required by the different departments so that they no longer fit nicely one over the other.

New Buildings Brought New Problems

Single-story buildings presented many economic problems such as higher building costs because of the extra amount of roofing. But careful examination of costs indicated that the heavier construction of multistory buildings largely offset this extra roof cost. The heavier construction features included thick load-bearing walls, heavier foundations, and heavier beams to support vibrating machinery and heavier floor planks.

Although single-story buildings were desirable, many construction problems were involved, including sites, ventilation, lighting, and actual construction details. The answers to many of these problems came from recent developments in other industries.

The enormous earth-moving machinery developed for road work during World War II made it possible to prepare large level sites at a nominal cost.

Two Factors Aid Square Buildings

Although the cost of square structures was lower than rectangular structures of the same area because of reduced wall areas, interior ventilating and lighting were bigger problems in square buildings. These problems were solved with better illumination and air conditioning.

Modern fluorescent lighting provides uniform intensity of light at all times and even makes fluctuating natural light undesirable for mill operation.

Air conditioning became economically practical, and uniform atmospheric conditions could be maintained regardless of the shape of the building or outside temperature.

One of the earliest totally enclosed structures was actually built underground to secure uniform outside conditions that would make uniform inside conditions possible. This building was two stories high, with the top at ground level and the weave room entirely underground.

The weave room was completely air conditioned and had a false ceiling with a plenum chamber between a false ceiling and the floor above. All air-conditioning ducts, piping, and wiring were concealed in this plenum chamber.

Design Problems Were Overcome

The actual design of one-story buildings also presented problems. Tar-concrete floors with maple surface had been the standard for floors on grade for many years. Concrete floors were cheaper but subject to deterioration and dusting and were easily cut by steel-wheel trucks. Fastening machines to concrete floors was also a problem.

These problems were solved by the development of a very hard, dense, and smooth surface for concrete floors, introduction of rubber-tire truck wheels, and isolation mounting pads for cementing machines to concrete floors.

The single-story building with steel-frame construction no longer required the heavy load-bearing walls of older mills.

Cheaper Materials May Be Made

However, there was the problem of condensation that is peculiar to textile mills. With high humidity maintained for proper operation, the inside surface of the exterior walls must be protected from low outside temperatures.

This problem led to the development of insulated walls with brick exterior surface and brick or glazed-tile inside surface. This glazed tile eliminated all wall painting and materially reduced the cost of cleaning and maintenance.

Although the insulated sandwich brick walls are meet-

ing present needs, it is possible, even probable, that they will be replaced with better and cheaper wall panels in the future. Many buildings are now being enclosed with large insulated panels of many materials, and some of these panels may soon be improved to meet the rigid requirements of textile mills: (1) strength against impact and (2) insulation to prevent condensation.

Single Floors Have More Open Area

Since the single-story mill has to suport only the insulated roof load on the steel frame, interior columns can be spaced much farther apart than was ever possible with supported floors in multistory buildings.

While many changes have occurred in machines and equipment mounted on the floor, equally radical changes have taken place on the ceilings over the machines. These changes were also dictated by economic conditions.

Fifty years ago practically all machines were belt driven from overhead shafting, and ceilings were filled with pulleys and belts. Routine procedure was to clean the belts and pulleys and oil the bearings every week end.

With the introduction of the earlier humidifier systems, supply pipes and drain pipes were added to the already overcrowded ceilings. About this time one progressive mill wanted to install monorails for materials-handling equipment but was forced to abandon the project because of interference from humidifier pipes and shafting.

With the general installation of motor drives for machines, most of the shafting was removed and the ceilings became practically clear.

Mechanical Cleaners Aid Workers

Shortly thereafter, spinning cleaners supported on tracks hung from the ceiling appeared. These cleaners blew on the creels only and were superseded by larger and more powerful cleaners mounted on tracks on the frames that clean all parts of the frames.

These modern cleaners relieve spinners of much manual cleaning and enable them to do more profitable work.

The old-fashioned broom fastened to a long pole to clean accumulated lint from the ceiling, sprinkler-system pipes, and lighting fixtures have been replaced by automatic ceiling cleaners that do a better cleaning job, maintain better operating conditions, and eliminate many yarn defects.

Cleaning in the entire mill has undergone many changes and improvements. In former years, motes were raked from under pickers and cards into open floor space and were shoveled into containers and carried manually to the wastehouse. Now they're removed by vacuum and are piped directly to the wastehouse.

Manual roll cleaning has almost disappeared from mills and has been replaced by the universally accepted automatic cleaners to pick up broken ends and collect the waste at the ends of frames.

Vacuum cleaning for weave rooms has been retarded by the combination of small, oily, and irregularly shaped surfaces of looms. Removal of cotton lint has been difficult; but several mills are presently getting good results from overhead loom cleaners, and one mill in particular is getting excellent results.

New Designs May Clear Ceilings

But with the installation of ceiling cleaners, frame cleaners, monorail materials-handling equipment, and air conditioning, mill ceilings are almost as crowded as they were with shafting many years ago. In fact, it's often difficult to avoid interference between the various systems; and frequently existing equipment must be moved to make room for other equipment.

These problems may lead to future changes in design, which are already being considered.

One mill overcame crowded-ceiling problems by installing all main air-conditioning ducts above the roof. The ducts were properly insulated and protected from the weather.

In a few mills, air-conditioning or humidifying equipment has been installed under the floor.

Plant Location— A Job for Experts

• There's an abundance of information available on excellent sites for new plants. But a successful decision can be made only after a careful analysis of your present and future needs.

By THOMAS O. OTT, JR., Head Southern Textile Div. Lockwood Greene Engineers, Inc.

For the textile firm planning to build a new mill in an area not well known to it, there's plenty of information available on excellent sites. But this information must be culled drastically before the best location can be selected.

There are several ways to select a site. In general, a real evaluation of the job calls for an intensive study by a group, numerous trips to many prospective general areas and specific sites within the areas, careful compilation of existing data and new data collected, and finally painstaking evaluation of all these data based on the needs of the new plant.

The study must be based on carefully prepared specifications of the needs of the company. These specifications are influenced by many factors, such as the type of yarn or fabric to be produced, markets, raw materials, transportation, labor, prevailing wages, other industries in the area, living conditions, educational and cultural facilities, taxes, and the general industrial attitude.

It could be disastrous to try to pioneer an area or specific locality without an intensive and careful evaluation of all important factors for and against such a building program.

The first study of a new plant site outlines the general specifications necessary to make the plant profitable. The study covers the company's present products and operations, the need to be filled by the new operation, and the reasons for wanting the new operation.

Six Reasons Control Selection

Reasons for wanting the new operation are particularly important and may include the following factors:

1. Relocation of all present manufacturing capacity in a new and promising area
2. Securing additional manufacturing capacity in a new area to supplement present capacity
3. Securing additional manufacturing capacity to supply or be supplied by existing plants
4. Building a plant for manufacturing textiles for the first time
5. Building a plant for a completely new yarn or fabric by a company not previously making the particular product
6. Acquisition of an existing plant for a specific product or conversion of the plant to new products

All Possible Data Are Searched

The study group uses all possible sources of information to find plant sites. Many state- and community-development organizations are helpful in furnishing information. Railroad and other agencies are also confidential sources of information.

As a basis of comparison, the report of data evaluation usually points to the desirability of one or two general areas over others and often to the desirability of one or two definite sites within each area.

When the feasibility study is completed, company officials consider their objectives from facts and recommendations in the report before they make a definite decision. If the decision is to relocate the plant, they request more intensive study of several specific sites in favorable areas before the final site is selected.

In extending this study to definite sites, the outside firm plots plans for incoming water, power, waste-disposal facilities, railroad sidings, roadways, etc., which are based on the outline of the buildings for the property.

Checklists Pin Down Facts

Checklists of all the factors that should be considered are helpful in making plant-site studies because they give the study group a guide for systematic organization of facts. Here are some of the most important points for such a checklist:

1. The attitude of local business, industry, and government that indicates whether a business is wanted and whether it will receive the full cooperation as a valued member of the community.
2. The probable effect of the new industry on the local economy. Will it have to compete for labor? Will it help solve local economic problems?
3. Will a supply of continuous labor be available in the right age group for present operations and probable future expansion?

Will Future Taxes Be Reasonable?

4. Will state, county, and community taxes be reasonable, and are they likely to remain so for an extended period?
5. Is the community a good place in which to live for key employees that must be moved from other areas? What are the educational and cultural advantages? Are home-rental and building costs reasonable?
6. Can a site be found that's accessible to major railroads, highways, airlines, and waterways?
7. Are adequate services available nearby for electric power, drinkable and process water, and fuels?

Wise Investigation Governs Choice

8. Is the site well located to markets and raw materials? And are freight and other transportation rates competitive?
9. Are other competitive companies likely to locate nearby?
10. Can adequate communications be maintained with the sales organization, home office, and customers?
11. Will actual recorded weather and climatic conditions be conducive to economical operation?

There are of course many other factors to be considered because such a checklist can serve only as a guide. Final site selection comes from intelligent investigation.

New Materials and Methods Govern Mill-Building Costs

• There are many ways to build the modern single-story, windowless mill buildings that make mill production efficient. Here are the newest materials, methods, and comparative costs taken from newer textile mills and buildings in other industries that are adaptable to textile mills.

By **GEORGE E. McDOUGALL**, Div. Manager
Daniel Construction Co., Inc.

The modern textile plant is the result of the industry's requirements to meet increasing material and labor costs by producing with greater efficiency and at lower operating costs. This need has developed a new low-cost type of industrial plant that requires a minimum of maintenance. This type of plant is characterized by the following features.

1. Single-story, windowless structures best suited for straight-line production to provide close interlocking of all operations into one complete unit

EXTERIOR WALLS of the new plant of Homelite Corp., Greer, S. C., are 8-in. jumbo brick. Although this single-story structure is not a textile mill, it has features needed in textile plants

2. Selection of materials of construction to provide low cost of construction and low maintenance cost
3. Selection of bay spacing and ceiling height to provide maximum flexibility to meet varying production demands economically
4. Installation of uniform lighting to provide a constant light level throughout the day
5. Installation of air-conditioning and ventilating systems to provide humidity and temperature as required for year-round operation, with a resulting increase in efficiency, quality control, and employee morale.

Single Floors Have Good Features

Single-floor plants lend themselves efficiently to straight-line production, allow horizontal flow of materials, and permit substantial savings in labor and materials-handling costs.

The construction cost for a single-story plant is less than the cost of the conventional multistory building. This lower cost is particularly outstanding in the Southeast, where land costs are low and plants are located in the urban countryside near a plentiful supply of labor.

New Methods Make Better Floors

The single-story mill brought about new methods in constructing floors. The conventional style of multistory mill had previously used hardwood floors. These floors were very satisfactory, but disadvantages were higher construction cost and continuous maintenance.

Both monolithic- and granolithic-topped concrete floors are suitable for most manufacturing operations. The cost of a concrete floor is usually less than half the cost of a hardwood floor on grade; and when it's constructed properly, the maintenance factor is very low.

Granolithic floor topping is very satisfactory where superior wearing qualities are required without the dusting characteristics sometimes associated with concrete floors.

Surveys based on actual worker reaction to working on concrete floors day after day show there's no problem with these floors. Workers are as well satisfied on concrete floors as on wood floors.

Generally, concrete floors on grade are poured over a sand or gravel layer or over a vapor barrier to prevent passage of vapor through the concrete slab. However, there are many instances where the subgrade is well drained and the concrete slab is poured directly on the grade.

Recent developments in floor hardeners and sealers have resulted in a combination sealer, hardener, and curing agent that's applied immediately after the concrete floor has been poured. These materials not only promote proper curing and hardening of the slab but also keep the slab clean during construction.

Concrete floors have proved to be satisfactory in all mill areas except in wet-processing areas, where chemicals are injurious to the concrete. In these areas, either acidproof brick or quarry tile is normally specified.

The following prices are a comparative cost index of reinforced concrete slab on grade in common thicknesses with liquid hardener: 6-in., 50¢ per sq. ft.; 5¼-in. with ¾-in. granolithic finish, 53¢; and 5¼-in. with ¾-in. Kalman-type topping, 72¢.

Two Factors Govern Wall Materials

The selection of materials for wall construction is determined basically by (1) a minimum curtain wall as a protection from the elements or (2) the necessary wall thickness to produce the required insulating effect. Very often the selection is made on cost alone or on architectural consideration.

In mill areas where high relative humidity is necessary, an insulated wall must be constructed. Many textile mills in the Southeast get excellent results with jumbo-brick walls. The jumbo bricks are hard-burned clay units that are subject to very little expansion or contraction from temperature or moisture. Therefore they are suitable for constructing varying types of walls.

The interior face of walls is often lined with structural glazed tile, which has the advantages of low maintenance, good light-reflecting properties, and pleasing appearance.

Prefabricated Walls Grow in Use

Much progress has been made the last few years in using prefabricated and field-assembled panel walls constructed from aluminum sheets, corrugated steel, translucent glass fiber, and corrugated asbestos. These walls may soon become common in textile mills.

The selection of type and style of wall construction is based on (1) cost, (2) architectural appearance, and

(3) necessary insulating value to prevent condensation of moisture or transmission of heat. Therefore it is necessary to compare cost, appearance, and relative insulating values of exterior wall construction.

In areas where insulation is not required, a corrugated aluminum or asbestos wall is usually selected for low cost and low maintenance; corrugated plastic is used in conjunction with either to provide light and attractive architectural appearance.

Tilt-up concrete-panel walls are used to a very large extent in constructing warehouses. This material results in excellent low-cost construction with a first-class insurance rate, but this type of wall construction does not lend itself economically to areas where insulated walls are required.

Roofs Are Built In New Ways

A wide variety of roof construction is available for new buildings. Selection of the proper roof depends on cost, insulating value, and resistance to moisture and corrosion.

Treated-wood decks have been used extensively in the textile industry and have given good service.

Precast-concrete roof slabs are an excellent product. Among their many advantages are minimum maintenance and a good fire-insurance rating.

Metal roof decks, either galvanized or painted, are increasing in use each year. Advantages are low cost and speed of installation. But in moist or highly corrosive areas, other materials are better.

Important additions to this roof-deck group are (1) poured gypsum and (2) wood-fiber and Portland-cement compounds. These decks are generally low in cost and provide minimum maintenance, and the fire-insurance rate is good. These roof decks are ideal for warehouses and other low relative-humidity areas.

But with all roof decks, the insulating quality must be assessed.

How To Determine Bay Spacing

Economical bay spacing for structural steel is determined by (1) superimposed live loads, (2) calculated dead loads, and (3) particularly the weight of the roof deck selected. And often, bay spacing is determined by the requirements of manufacturing equipment.

Prestressed concrete, which has entered the building field only during the last few years, is gaining rapidly in use because of the shortage and increasing cost of structural steel. This building material will probably be used even more in the future. Fireproof construction, low maintenance, and ease of installation make this product successful.

Electrical Systems Are Improved

Changes in electrical systems have also come with the single-story, windowless mill building. Basically, these changes are increased high-voltage distribution to load centers and increased intensities of lighting.

The single-story building readily lends itself to power-distributing requirements. Therefore it's economically feasible to locate power load centers of 13,200 or 4,160 v. throughout the mill. Voltage is stepped down to the requirements of mill machinery.

To further increase quality control and efficiency, especially in mills producing high-quality yarn and fabrics, lighting intensities have been increased. Higher lighting intensities without a proportional increase in cost have been helped by improvements in fluorescent-lighting tubes.

Typical costs and intensities of lighting in present plants are:

Department	Ft.-Cs.	Cost per sq. ft.
Carding	30	$0.50
Spinning	50	0.90
Weaving	50 to 100	0.90 to 1.50
Finishing	25 to 50	0.50 to 0.90

Air Conditioning Aids Production

The constant demand for increases in production and improved quality of finished yarn and fabrics has resulted in close control of temperature and humidity. Modern air-conditioning and ventilation systems provide control of temperature, humidity, and cleanliness in the modern textile plant. And the single-story building has decreased first costs, operation, and maintenance of these systems.

Eliminating windows has reduced air-conditioning requirements and heating loads, and in addition it has made it possible to control conditions closely near the outside walls. Air conditioning, with its necessary windowless construction, does not limit the shape of the building but instead makes it more flexible and economical.

Machines Govern Conditioning Cost

The accompanying table shows the contributing factors in a typical textile plant on a cost-per-square-foot basis. The primary item affecting air-conditioning cost is the manufacturing machinery.

Walls (U-factor assumed 0.26)	$0.10
Roof (U-factor assumed 0.14)	0.24
People	0.01
Lights (40 ft.-cs. assumed)	0.28
Machinery	1.14
Ventilation	0.06
Miscellaneous items	0.09
Total	$1.92

The particular condition required for a given phase of manufacturing is of great importance. Inside temperature is usually 80° F. Relative humidity depends on the process, and there's a definite trend toward lowering over-all humidity. The results are more-comfortable working atmosphere, less maintenance, less operating cost, and lower first cost.

Many improvements have been made in air-conditioning equipment. The hermetic centrifugal refrigeration equipment has simplified installation and control and has reduced capital investment, operating cost, and maintenance.

Recent developments in air-handling equipment have decreased operating weight and cost and have eliminated week-end maintenance.

Two Case Projects—

1. Building a New Mill
2. Expanding a Present Mill

- Methods used in constructing a new plant or expanding an old one are somewhat similar, but they have engineering differences. Here's how—
- A recently completed new plant was built
- An addition was made to an old mill

By THOMAS A. ABLE, JR., Assistant Secretary-Treasurer, Fiske-Carter Construction Co.

Constructing a new textile plant or expanding an existing one is achieved best through the owner-engineer-contractor relationship.

The engineer is brought into the relationship as the first step after the owner decides to build. A competent engineering firm experienced in the design of the particular type of plant to be built should be consulted.

There's often confusion about the activities of an engineering firm, usually referred to as the "engineer," and the contracting firm, usually referred to as the "contractor."

The engineer specializes in the planning and design phase of the plant construction and does no actual construction work. The contractor constructs the building from the engineer's plans and specifications and does no design work.

The owner advises the engineer of the end results in terms of productive capacity he expects from the new plant. From preliminary sketches the engineer makes of machinery layout, a cost estimate is made.

Sketches Indicate Cost Limits

As a result, the owner can determine within reasonable limits whether the proposed project is within his anticipated budget or whether adjustments must be made in the size and scope of the plant. In this way, financially feasible plans and specifications are determined.

Next a plant site is selected, if it has not already been selected. [See page 64.]

When plans, specifications, and plant-site selection are completed, it's best to solicit bids from several general contractors for construction work; and generally, it's best to ask for bids in a lump sum for complete construction of the plant.

Problems Are Solved on the Job

A well-qualified resident engineer is of great value both to the owner and to the contractor. Many emergencies always arise during construction that were not anticipated in the plans and specifications. Typical emergencies are unusual soil-bearing conditions and unforeseen material shortages.

When these problems arise, the resident engineer can solve them and save the time and expense of holding up construction while the problem is referred to the engineer's home office.

Two recently completed textile-mill constructions were handled in the following way.

Project No. 1

The first project was a completely integrated carpet-manufacturing plant built on an undeveloped site. Water and power were brought to the plant by separate contractors, but the general contractor handled all necessary utilities within the plant site.

The plant consists of 130,000 sq. ft. of manufacturing space, 5,000 sq. ft. of office space, and 5,500 sq. ft. of miscellaneous space for platforms, boiler house, and small structures.

The contractor's first job was to move in and set up his construction plant that included office, storage facilities, concrete plant, etc.

Before actual layout and foundation work were begun, approximately 75,000 cu. yds. of earth were moved. As soon as grading was completed, lines and grades were established. Then footings were excavated and poured.

Building Has All-Steel Frame

After the foundation was completed, a steel frame was erected consisting of 1,100 tons of structural steel connected with high-tensile-strength bolts.

Following the erection of the steel frame, 135,500 sq. ft. of precast-concrete roofing slabs were installed and covered with a vapor seal for waterproofing.

After eaves and gutters were installed, 2 ins. of foamglass insulation was put on the vapor seal and a 20-year-bonded roof was added.

Exterior masonry walls 25 ft. high, consisting of 4-in. jumbo utility brick on the exterior surface, 2-in. foamglass core-wall insulation, and 8-in. concrete block on the interior surface, were constructed as soon as roof slabs were laid.

Mechanical System Is Installed

As the roofing construction progressed, 135,000 sq. ft. of concrete slabs on grade were poured for a floor. After the roof and walls were made watertight, a 3/4-in. Kalman topping was installed on the floor slabs.

The mechanical system, including sprinklers, complete air conditioning, and electrical apparatus, was installed after the base floor slab had cured enough to bear traffic.

Total construction time for the building from the beginning of grading to completion was 300 days. But manufacturing operations were started, and the first new carpets were produced at the end of the first 200 days.

Project No. 2

The second project was an extension to an existing integrated spinning and weaving mill. Generally, construction methods for the completely new buildings and expansions are similar, but there's one major difference: the mill owner often has an engineering department to handle small expansions.

In many instances an expansion project is relatively free of the complex technical problems involved in a new-plant design, but in other instances an expansion may present a greater range of design problems than an entirely new plant.

Therefore, since the size and complexity of expansion projects vary between wide limits, it is impossible to select a typical example. However, the following outline covers one plant expansion recently completed.

The addition to the spinning and weaving mill is approximately 20,000 sq. ft. of manufacturing space. The owner had a capable and experienced engineering department large enough to handle the design of the structure and to supervise construction.

Several Companies Bid on Contract

The mill owner's engineer prepared plans and specifications and solicited bids from a list of contractors.

The contractor selected removed vegetation from the building site, excavated for footings, and poured the footings.

Since the level of the floor averaged 3 to 4 ft. higher than the natural grade, a reinforced concrete foundation wall was poured that extends from the top of the footing to the floor level.

Then the space inside these walls was back filled with 2,000 cu. yds. of compact earth to an elevation corresponding to the bottom of the operating floor.

Approximately 90 tons of structural steel were erected and bolted in place.

The wood roof deck was nailed to wood strips bolted to the steel roof beams; 65% of the roof deck is 3 ins. thick, and the other 35% is 4 ins. thick. An insulated built-up roof was applied.

The 4-in. deck is for an area designated for the future addition of a second story. When this second floor is added, the tar-and-gravel roof will be removed and the deck will be used to support the new floor.

The exterior walls are composed of 4-in. common-brick veneer backed by 8-in. concrete blocks and are 18 ft. high. They were started soon after the roof decking had begun.

The tar, concrete, and wood floor was installed after the building had been made waterproof.

Finish Floor Is Polished Maple

The floor foundation is a course of tarred stone rolled to a compact thickness of 3 ins. This layer is followed by a course of tarred sand rolled to a compact thickness of 1½ ins.

A 2½-in. creosote-treated wood plank covers the tarred sand. A 1-in. treated intermediate floor was placed over this subfloor and was covered with a layer of sisal-kraft paper.

Finally, there's a 1-in. maple finish floor that's sanded and finished.

In addition to constructing the new building, several other jobs were done in the existing plant, such as bricking up portions of window openings, altering some of the structural framing, relocating doors, and rearranging yard facilities.

From beginning to completion, the building project required 175 days.

Machinery Layout— A Vital Building Factor

• The modern mill building can't be custom built to exact machinery layout and work flow because new machinery and product changes require layout changes. So a new plant must be versatile to absorb these changes without excessive and costly machine relocation.

By **CHARLES P. ROBERTS**, Vice President, Robert & Co. Associates

Correct machine arrangements and the resulting smooth flow of stock contribute to lower manufacturing costs in both cloth mills and finishing plants.

Modern trends in machinery layout and work flow in cotton-spinning and -weaving mills are leading almost entirely to single-story, windowless plants.

The chief factors affecting these trends are today's insulating materials to control heat transmission, good artificial lighting, and high-speed machinery that requires solid foundations and wide column spacing.

This column spacing can be acquired economically now since columns support only roof loads. Air conditioning has replaced windows as ventilators and is resulting in better atmospheric control and manufacturing efficiency.

All Mills Have Basic Problems

Although the basic machinery is different, mills manufacturing woolens, worsteds, and man-made-fiber fabrics all have the same basic problems of cotton mills in job-load changes, organizational changes, and in-process storage.

Modern practices in these mills and in cotton mills are replacing the obsolete practices held over from multi-story buildings that utilized natural gravity flow of materials. Here opened and cleaned fibers were pneumatically conveyed to top-floor picker rooms and adjacent card rooms. Then roving was dropped through chutes

or moved by elevators to each succeeding step in yarn manufacturing. Material ended on the ground floor in the weave room and cloth room.

Column spacing was generally 10 ft. 8 ins. and 21 ft. 4 ins. by 25 ft. Layout was restricted, and individual departments on upper floors could not be expanded economically. The low machine speeds and low jobloads let these practices survive.

Horizontal Flow Is the New Way

Horizontal flow of stock has become the accepted practice in the modern mill. Higher manufacturing efficiency, controlled production, and larger packages have lessened the requirements of in-process storage with a resulting saving in floor space.

There are two common practices in plant layout: (1) straight-line flow and (2) U-flow.

In straight-line flow, cotton is received and stored in one end of the building and cloth is shipped from the other end.

But there's one exception to this practice: raw stock is stored in the opening and cleaning department, which is at the weaving end of the building. The opened and cleaned stock is conveyed to the pickers pneumatically. This arrangement is usually a good one and becomes bad only if problems arise from an excessively long conveyor pipe.

U-Flow Leaves Space for Expansion

Practices in U-flow result in storage, shipping, and receiving at one end of the building with space left for expansion on three sides. Service areas are placed down the center as dividers between manufacturing machines. And with U-flow, the building is square so that first cost is less than with straight-line flow.

The older method of crowding machinery to reduce overhead is giving way to the present method of laying out machinery for changing workloads easily, better access to machines for maintenance, and versatility in machine replacement.

Present workloads are much greater than in the past, and they require much walking. Consequently efficiency is lowered when access is limited between lines of machinery.

Layout of looms independent of columns allows more flexibility in loom replacement when width changes are necessary.

Here's an Ideal Machinery Layout

Increased spinning production from finer yarn numbers has been offset to some extent by narrow spinning frames and large packages. Cross alleys are left between all frames for accessibility.

The old practice of nesting motors is obsolete in modern spinning rooms because hot spots in motor alleys seriously affect humidity conditions.

The following machinery layout is ideal:

Opening and cleaning are near the raw stock with adequate layout space for blending. But recent preblending practices tend to reduce this requirement.

Pickers are near the cards and are located near the center of the cards with plenty of picker-lap storage space either on racks or on conveyors.

Card alleys are perpendicular to drawing creels, and roving frames are perpendicular to drawing.

Spinning is parallel with roving frames.

Actual layout of spooling, quilling, warping, and slashing depends on the type of machinery; but there's always plenty of storage space for yarn beams and filling adjacent to weaving.

All departments are arranged so that any given department can be expanded as an over-all unit when a change in yarn or fabric upsets the mill organization.

One Floor Is Best for Finishing

The finishing branch of the textile industry has also adopted the single-story plant. Finishing, with its complexities and extremely heavy machinery, lends itself to single-story operation even better than cloth manufacturing does.

Now most fabrics can be handled from process to process through poteyes very cheaply. This method is particularly adaptable in damp goods.

Dry cloth rolls lend themselves to mechanical handling.

Pits and trenches handle waste adequately and, most important, keep waste visible so that no unseen damage to structures occurs.

Since there's little need for operators to have access to equipment such as curing ovens, back dryers, and occasionally dry cans, pent houses are used to enclose this equipment.

There Are Three Types of Layout

Another vital factor that has contributed to layout of finishing plants on one level is the need for exhausting the drying portions of various machines. One-story plants are easily exhausted to eliminate fogging.

Proper layout and material flow through finishing plants is more difficult than in gray-cloth mills because various types of finishes constantly change machine requirements and scheduling.

Three basic types of layout are prevalent in modern plants: (1) straight-line flow, (2) offset flow, and (3) U-flow.

Straight-line flow where gray cloth enters at one end and finished cloth is shipped from the other is adequate when flow is somewhat standard, as in finishing sheeting, corduroy, knitwear, etc. But in finishing each of these materials, there is some variation that makes flow of product diverge from the normal flow.

Disadvantages of this type of layout are: the boiler plant often has to be located away from the plant to preserve expansion room, service rooms are difficult to locate without blocking expansion of processing, and plants become too long and are frequently expensive to build.

Offset Flow Has Many Advantages

The offset-flow plan is a better layout than the straight-line flow. This plan allows processes to be set apart from the main-flow line and any process to be taken out of the line of flow as needed.

This plan works well in resin treating where double tentering is required. And generally the offset method gives more flexibility in varied finishing processes. Another important function of offset flow is the grouping of the heaviest steam loads closer together.

U-Flow Is for Limited Routes

The U-flow plan is well adapted to operations where there are not too many routes in process. Too much handling of fabric over or around processes results in damaged or soiled work.

This plan achieves the same good results in finishing as in gray-cloth mills: it allows services to be placed down the center of the plant with better and shorter access from both sides, and it also provides better grouping of equipment that uses steam heavily.

Gray-cloth storage is located as near as possible to lot assembly and singeing or to the first process in the line of flow. Both rolls and bales of gray cloth are stacked in racks for easy access.

Singeing and bleaching, and in some instances mercerizing, are in line. Dyeing, printing, soaping, and specialty-finishing equipment are set apart to provide storage and service areas out of the general line of flow when necessary. Cloth to be finished white never passes through dyeing or printing areas.

Finish tentering is near compressive shrinkage to limit handling. Finished fabric is put up, shaded if needed, packed, and stored to avoid soils and damage.

The ideal plant layout also provides adequate operating room for employee and machine efficiency, room for easy maintenance, and room for reasonable growth. Product is delivered as near as desirable to the next process with adequate storage space. Mechanical handling is used only where the layout cannot possibly provide the natural desired flow.

Materials Handling— As Important as Machinery

• Mills with standard materials-handling equipment can take a second step toward a completely modern plant by adding specially designed equipment. But it may be possible to use standard equipment with optimum results by improving machine layout.

By THOMAS O. OTT., JR., Head Southern Textile Div., Lockwood Greene Engineers, Inc.

Adaptation of materials-handling systems and equipment to textile manufacturing has developed to such a great extent that mill engineers now consider this equipment as essential as production machinery.

Conventional systems are fork trucks; warehouse shelving and bins; picker-lap conveyors; monorail and bridge systems for warping, slashing, and weaving; and roller and belt conveyors in cloth inspection, packing, and shipping.

In addition to standard systems and equipment, a mill engineer often has to design special systems for automatic conveying to develop the optimum manufacturing layout. Therefore materials-handling systems must be carefully considered both in developing machinery layout in new plants and in improving layouts in present plants.

Good System Meets Two Objectives

The mill engineer has two objectives in designing a materials-handling layout for new plants: (1) to develop the optimum machinery and process layout to minimize the need for special materials-handling systems and (2) to select materials-handling equipment that reduces the cost of handling materials between departments.

In instances where a new building is added to an existing plant, a third objective is added: materials-handling equipment must integrate the two plants. One example is in Erwin Mills, Stonewall, Miss., where a new weave room was constructed adjoining two old multistory mill buildings. One of these old buildings was converted to carding and spinning, and the second was made into a finishing plant.

CONVEYOR SYSTEM is automatically dispatched at Virginia Mills to convey yarn on warper section beams to the dyehouse and back to the slasher room.

The new weaving mill was planned with bridge systems for beam handling. But a dispatched-cab system had to be added to convey filling yarn from the spinning mill to the weaving mill and to take cloth from the weave room to the finishing plant.

Multistory Plants Limit Design

Adaptation of materials-handling equipment to existing plants is different from that of a new plant because of limitations imposed by multistory construction, differences in floor elevations, narrow bays, and small adjoining structures not well located for an efficient layout.

As a result, specially designed materials-handling systems must be used. A typical example of modern specially designed equipment is at Virginia Mills, Inc., Swepson-

SPIRAL CHUTES and inclined conveyors replace elevators in exiting multistory buildings to eliminate expensive elevator operation.

ville, N. C., where an extension was built to a slasher room and drawing-in room, which were at weave-room level.

But the new extension was at a higher floor level than the weave room. Slashers were moved to the new extension.

Dyehouse operations are on a third level. So a specially designed overhead automatic-dispatch conveyor system was designed to move yarn beams between the three levels.

Cloth-Packing System Is Efficient

A materials-handling system recently installed for cloth handling in the export-packing building of the South Carolina State Ports Authority at North Charleston, S. C., is particularly applicable to textile mills. The system is used in handling, sorting, and packing or baling finished goods for export.

The packing building contains 9,600 sq. ft. and is adjacent to warehouses. The new system provides efficient service in repacking finished baled cloth for special orders for export agencies that store cloth at Charleston for shipment abroad.

Before reshipment, bales of cloth are broken open, styles and colors are selected, and cloth is rebaled for export to specific customers. In addition, individual lots of cloth are reprocessed and put up in any of the accepted ways such as rolls, folds, or double and roll, or double and flat fold.

Plant layout includes standard cloth-folding and rolling machinery. Special bale-storage racks are provided. Specially designed conveyor equipment handles the bales opened for repacking and minimizes the labor in sorting, casing, and repacking the special shipments.

Operation Is Very Systematic

The operation is handled in the following way:

1. A fork-truck operator removes bales from storage racks or warehouses and transports them to a supply table near the sorter operators where bale straps are cut and the bale covering is laid back.
2. A sorter operator places an adjustable metal-frame box on the sorting table and selects individual bolts or rolls of cloth and places them in the metal-frame box.
3. Box size is specified, and the carpenter shop supplies the wooden box from standard stock.
4. The packing table is moved the full length of the storage table until the metal frame is filled. Then the metal frame is removed, and the wooden case is pushed down on the cloth.
5. The top of the case is put in place, and the case is pushed into a hydraulic press and strapped.
6. The case is pushed out of the press to a ball conveyor and roller conveyor, where it is picked up by hydraulic turning devices for stenciling.
7. Then the stenciled case is weighed and shoved down roller conveyors to shipping.

Coze Studio

THE SOUTH CAROLINA CARPET-YARN PLANT shown here and on our cover incorporates many of the features outlined in this guide to modern mill buildings.

Textile World

CHEMICAL TREATMENT AND FINISHING

IN THIS SECTION

THIS MONTH'S DEVELOPMENTS

Textile Chemicals 75

New Dyes and Chemicals 78

BUSINESS

USF-Aspinook Turns Loss Into Profit. Here's how management and a cooperative union saved a New England mill and turned it into a successful operation 81

PREPARATION & BLEACHING

9. The Continuous Systems. The four common systems. How the single-stage system works 89

DYEING & FINISHING

Control Is Key to Success in This Operation. Dyeing and finishing methods are simple but effective and controlled at every point so as to be reproducible from lot to lot ... 92

FINISHING

How Vulcan Produces Coated Fabrics. Its success comes from expert blending of various latices, painstaking application methods, and rigid quality control 101

QUALITY CONTROL

How To Remove Spots on Piece Goods 105

Tips to Troubleshooters—How We Check Vat Colors for Bleeding During Bleaching 109

For more satisfactory carpet shades, the man to see is at Sandoz

Whether your carpet is wool, cotton, or nylon, Sandoz dyes and dyeing formulas can help you offer improved color fastness and levelness. Recent improvements credited to Sandoz technology include the dyeing of wool at the iso-electric point (using Lanasyn dyes and Lyogen SMK) and the barre-free dyeing of filament nylon with Lyogen P and Lyogen SF. For your cotton products, Sandoz provides the fastest-to-light directs (Lumicrease colors) as well as a full line of vat dyes. Sandoz can offer you shade matches completely compatible with all types of carpet backing.

For details and particulars, write, wire or 'phone headquarters: SANDOZ, INC., New York 13; Charlotte 5, N. C.; Cincinnati 26; Hudson, Mass.; Los Angeles 13; Philadelphia 34.

SANDOZ

THINKS AHEAD WITH TEXTILES

SANDOZ

Reactive Water Repellents—

Improved water repellents for cellulosic fabrics have been developed that are structurally similar to reactive dyes of the Procion group.

Procions are based on a dye molecule that includes a 1:3:5-triazine nucleus that has one or two chlorine atoms that are reactive to the hydroxyl groups of cellulose molecules.

The new water repellents are based on a similar halogenated 1:3:5-triazine nucleus that is linked to a long-chain-NH alkyl group, which confers water-repellent properties on the compound.

When applied to a cellulose fabric, the water repellent becomes attached to the fibers through an ether linkage of the cellulose-O-water repellent type. A typical water repellent of this kind is 2-stearylamino-4:6-dichloro-1:3:5-triazine, which can be made by reacting cyanuric chloride at a low temperature with aqueous alkali.

The treatment consists of padding the goods through a 15% solution of sodium carbonate and then through a 2½% solution (in chloroform) of the water repellent. The goods are steamed for 30 mins. and given a final rinse. The finish is not affected by drycleaning with trichlorethylene and is fast to washing. The product was developed and patented by The Calico Printers Association Ltd.

New Assistant Helps Wool Dyeing—

Level dyeings on wool with neutral-dyeing premetallized dyes that contain less than one atom of metal per atom of dye are more easily attained with the aid of a new assistant developed by Farbenfabriken Bayer A.G.

The dyebath is set with a 1-to-5 mixture of polymeric N-vinyl pyrrolidone and hexamethylenetetramine to get the improved results. No Glauber's salt is needed. As a side reaction, a small amount of formaldehyde splits off from the hexamethylenetetramine, which reacts with the wool to increase alkali resistance and reduce shrinkage.

$KBrO_3$ Is Latest Wool Stabilizer—

Potassium bromate is the active agent in a wool-stabilizing process discovered by Dr. Manahem Lewin, head of the Institute for Fibers & Forest Products, Tel Aviv University.

Latest reports on the process are that it has been checked on an industrial scale by several British wool manufacturers. Successful trials have also been carried out at the Wool Research Laboratory in Australia. Interest has also been shown by European and U.S. concerns.

[*A previous report* (TEXTILE WORLD, *Oct. 1959, p. 68) concerning the above process was incorrect in referring to the activating chemical as potassium bromide.*—EDITOR]

Reactor Gets U. S. Tryouts—

Celanese Fibers Co., a division of Celanese Corp. of America, played host to 50 dyestuff manufacturers' technicians last month at a demonstration of the first Montforts reactor in this country.

Short runs of Arnel-cotton fabrics were made for the visitors to show the possibilities of cross dyeing each fiber or leaving either fiber white.

The unit, installed at the Dyeing & Finishing Development Laboratory, is an approximately half-scale model of production machines now in use in Europe.

The primary advantage of the system is the very high processing temperatures that can be reached (up to 400° F.), which speed up the chemical reactions involved in dyeing, desizing, ageing, or other common processes.

Several dozen samples, made of a wide variety of fibers and blends of fibers and dyed on the reactor, were on view for the visitors.

The dyeing of the Arnel component in the samples shown was aided by the inclusion in the dyebath of swelling agents such as diacetone alcohol,

and phenyl glycol ether.

Direct colors chosen for the cotton component of the blends were of the Coprantine or Cuprophenyl type that benefit by aftertreating with copper-resin compounds.

According to Fred Fortess, manager of the Dyeing & Finishing Development Laboratory, the Celanese Fibers Co. is interested in the reactor solely as a means of developing improved dyeing methods for all fibers.

Wash-and-Wear Needs Basic Research—

Marginal improvements in wash-and-wear finishes are all that can be expected until more is known about the fundamental characteristics of fibers, yarns, and fabrics, according to Dr. Walter J. Hamburger.

Speaking before the American Association of Textile Technologists last month, Dr. Hamburger pointed out that crease resistance, for example, is related to natural fabric curl in a very complex way.

Studies made on wool, and applicable to other fibers, show that crease recovery is measurably improved if a fabric is creased in a bias direction in the opposite direction to the fabric's natural bias-direction curl.

Better knowledge of fiber properties such as resistance to deformation, recoverability from tension and bending, and response to other conditions encountered in fabric service must be obtained, he continued, before the perfect wash-and-wear fabric can be expected.

Yarn structure, spacing, type of weave, and mechanical processing must be evaluated for their effect on the finished product before we can expect to make any really significant improvements in wash-and-wear, he concluded.

Nuclear Reactors May Produce Chemicals—

Methods of producing chemicals by treating basic organic raw materials in a new type of nuclear reactors will be described in technical articles to be released by Hercules Powder Co. in the near future.

The new processes utilize the recoil energy of nuclear fission, made available for chemical synthesis by the design of the special reactors. Only a portion of the recoil energy is used for converting the basic chemicals; the balance is available for electrical or thermal power conversion.

Products of low molecular weight seem to be particularly adaptable to production by the process. Ethylene glycol, for instance, can be produced at 65% yield from methanol by the Hercules process.

New System Helps Waste Disposal—

A method of consuming sludge contained in many industrial wastes and/or sewage has been developed and patented by the Pulp and Paper Research Institute of Canada. Simplicity, speed, and economical operation are features of the process, which is called the Atomized Suspension Technique, AST for short.

AST eliminates the need for bacterial digestion of sludge, drying beds, and the costs of removing dried sludge.

Settling basins are still required for operation of the AST system, and the supernatant liquid from the settling basins has to be chlorinated before discharge into a stream.

However, sewage sludge or plant wastes can be economically consumed by the AST method as follows:

The sludge or concentrated plant waste is sprayed into the top of a tower. The tower walls are heated by gas or electricity and maintained at 1,000 to 1,400° F.

The heat causes the moisture in the sludge to flash into superheated steam, which becomes a carrier vapor. As evaporation continues, the solid particles are suspended in a nonturbulent vapor of their own creation.

If air is added to the suspension, organic matter will burn and the final residue is a sterile ash that can be removed from the bottom of the tower.

It is possible to maintain tower temperatures

from the combustion of the organic matter alone once the process starts to operate.

The steam from the AST system can be used to heat process water through condensers, which further reduces operating costs.

Textile-plant application possibilities would appear to range from chemical recovery to relatively low-cost antipollution procedure.

One-Step Glass-Fiber Dyeing Now Possible—

French chemists have recently discovered that metal-complex dyes that carry the complexing metal and the dyestuffs in the cationic portion of the dye molecule show a strong affinity for glass fibers.

Solutions of such dyes are almost completely exhausted from the dyebath onto glass fiber, and the dyeings are fast to washing. There is no need for prior treatment of the fiber or the application of dye-fixing agents.

There are many dyes now available that can be converted into the necessary configuration for application to glass.

Examples are dyes obtained by reacting a basic salt of chromium and a monovalent acid with an insoluble or sparingly soluble dye that contains at least one phenolic (OH) group in such proportions that at least two atoms of chromium are introduced for each molecule of dye.

Water-soluble chromium complexes of dyes that contain at least one COOH group are also suitable.

In a typical case, a dye made by coupling phenyldiazonium chloride with salicylic acid is dissolved in isopropyl alcohol and treated with chromic chloride hexahydrate and caustic soda dissolved in ethyl alcohol. The mixture is boiled for 30 mins. and yields a chromiferous-complex dye that produces a bright yellow color on glass fibers.

A red dye is obtained in a similar way from 2:2 dihydroxyazobenzene, and a violet-blue dye can be made by coupling diazotized 2-amino-5-nitrophenol with B-naphthol. Compagnie Francaise des Matieres Colorantes holds British Patent 825,010 on the development.

Pretreatment Helps Reactive Dyeings—

If cotton goods are first padded in a 1% solution of caustic soda and then dried, a subsequent padding in the required reactive dye will give dyeings of superior fastness to light and washing. The dyed goods are dried and steamed at 100° C. for 3 mins. to complete fixation of the dye.

After steaming, the goods are rinsed, washed in a sodium-carbonate solution, soaped, boiled, rinsed, and dried. More details are available in British Patent 819,585.

Did You Know—

. . . **that fluorescent brighteners can give fast colors a bad name?** Overdoses of unsuitable brighteners are causing an increasing number of consumer complaints about color fading. Clay W. Hardin, chief analyst of National Institute of Drycleaners, told a meeting of the Institute's Textile Advisory Committee recently that the weak spot is poor lightfastness of some of the brighteners.

Light shades and whites are measurably brightened when the fluorescent materials are added; but with a lightfastness of as little as 4 to 5 hrs. Fade-Ometer, the colors and whites soon become grayish in tone.

What goes on exactly is not clear; it is not known whether the fluorescent brighteners change color or if there is a reaction between them, the fiber, or the finish that produces the bad effects.

Some brighteners have poor colorfastness to chlorine bleaching, which complicates the problem in normally washable fabrics. These products become light-sensitive after a laundering that includes chlorine and lose their ability to remit ultraviolet light.

Dyestuff manufacturers state that lightfast optical brighteners are available but cost slightly more than those that are giving the trouble.

●

. . . **that a new chemical treatment cuts water absorption of rayon from 98% to 45%?** English chemists find that by drying a slightly alkaline 2.5% solution of tris-(2:3 epoxypropyl) ethylamine into rayon yarn or fabric at 70 to 140° C., water imbibition can be greatly reduced.

The fibers are not discolored and have properties approaching the drip-dry qualities of the hydrophobic man-made fibers.

Variations of the process include treating at higher alkalinity with 3-chloro-2-hydroxypropyl ethylamine, which hydrolyzes at the higher pH to the 2:3 epoxypropyl compounds that etherify the OH groups in cellulose.

NEW DYES AND CHEMICALS

Premetallized Dyes

Lanafast . . . brands a series of premetallized dyes that are applicable to wool, nylon, acrylic fibers, and blends and mixtures of these fibers.

The range of dyestuffs has superior light- and washfastness and is particularly suitable for upholstery, carpets, suitings, and sportswear fabrics. The dyes work well together and are applied by standard procedures for premetallized colors. Althouse Chemical Co. Div. of Crompton & Knowles Corp., Reading, Pa. **Circle D-1 on Reader-Service Card**

Antislip Finish

Atco SA . . . produces antislip properties on fabrics where seam slippage is a problem. The product will work on the acid side with other finishing agents or dye fixatives and also builds up hand if it is used in the finishing bath. Metro-Atlantic, Inc., Centredale 11, R. I. **Circle D-2 on Reader-Service Card**

Backing Compound

Pliolite Latex 140 . . . is a water dispersion of a styrene-butadiene copolymer (60 to 40) that contains a nonstaining antioxidant system.

The latex has low odor, excellent clarity and adhesion, and high pigment-binding power. Suggested uses are for textile sizing, upholstery and carpet backings, and carpet-scrim adhesives. Goodyear Tire & Rubber Co., Akron 16, Ohio. **Circle D-3 on Reader-Service Card**

Nylon Dye

Nylanthrene Green 2GFL . . . offers a more-positive approach to true green shades in the Nylanthrene series. The dye exhausts well and has superior pile-on qualities while maintaining good leveling characteristics in neutral dyebaths.

Fabrics dyed with this color show no test-fiber staining at 140° F. wash and have excellent lightfastness.

The shade produced by the dye is brighter than most neutral-dyeing nylon colors and is faster to light and washing than most greens produced by mixing blue and yellow dyes. Althouse Chemical Co., Div. of Crompton & Knowles Corp., Reading, Pa. **Circle D-4 on Reader-Service Card**

Self-Curing Latex

Lotol L-4634 . . . can be used with ordinary fillers to produce high-strength, full-bodied carpet backings that need no curing.

The product contains no sulfur-based curing agents or accelerators and is highly resistant to discoloration from exposure to heat and light. In most applications, there is no need to add plastic latices or hard resin extenders to improve hand. Tuft-locking qualities are excellent. Naugatuck Chemical Div., U. S. Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y. **Circle D-5 on Reader-Service Card**

Softeners

Creamoyl A, Creamoyl AC, Creamoyl AXC . . . are a family of economical softeners that are effective in improving the hand of natural and man-made-fiber fabrics. The products are particularly suitable for Orlon knitted fabrics, to which they impart durable softness and surface lubrication. Scholler Bros., Inc., Collins & Westmoreland Sts., Philadelphia 34, Pa. **Circle D-6 on Reader-Service Card**

Dyeing Assistants

Tri-A-Mine W . . . is designed to aid penetration and leveling of color in the dyeing of woolen knitted fabrics. The assistant also retards the felting of wool.

Trisco Retarder LR . . is useful as a retarder and leveling agent in the dyeing of Orlon with basic dyestuffs. It is particularly effective in protecting such fabrics from heat marks and other sources of unevenness.

Tri-A-Mine GIS . . . combines leveling and penetrating qualities with good defoaming action. The product is effective over a wide temperature range and is resistant to hard water. Scholler Bros., Inc., Collins & Westmoreland Sts., Philadelphia 34, Pa. **Circle D-7 on Reader-Service Card**

Fiber-Reactive Dye

Procion Brilliant Purple H3RS . . . produces reddish-purple shades that have excellent fastness to washing and light.

The color builds up well to deep shades on cotton and viscose rayon. It is an H-type Procion dye and therefore requires steaming after printing, but its low reactivity contributes to good print-paste stability.

The dye has good fastness to hypochlorite bleaching on cotton and is highly soluble. It can be applied by any of the methods recommended for H-type Procion dyes, but it is not dischargeable. Arnold, Hoffman & Co., Inc., Providence, R. I. **Circle D-8 on Reader-Service Card**

Antistatic Finish

Merix Anti-static #79-OL . . . is an odorless and nonflammable product that is especially designed for use as a spray for finished fabrics and carpetings.

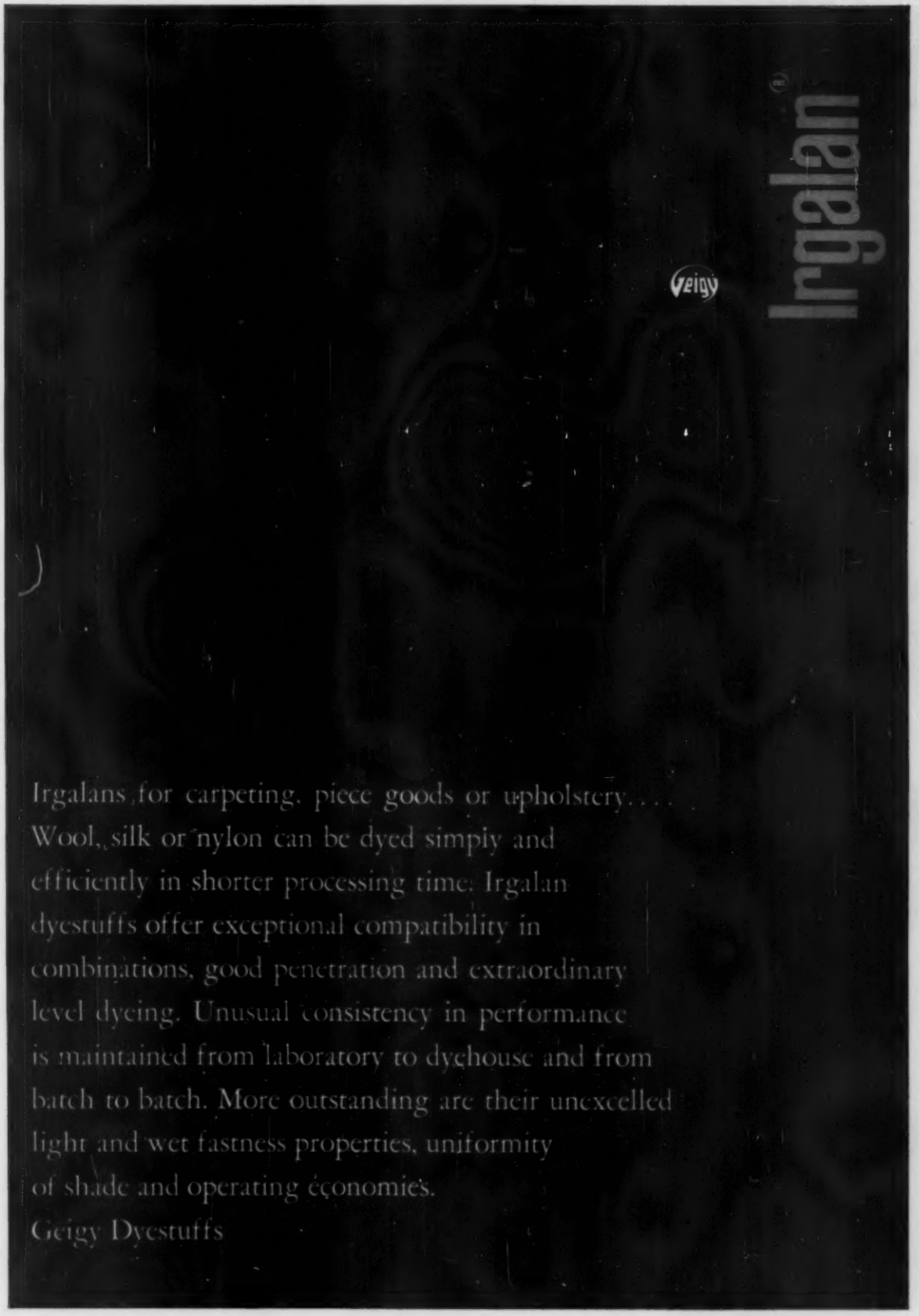
Goods treated with the material will not develop electrostatic properties that produce shocks. One gallon will treat up to 4,000 sq. ft. of fabric. Merix Chemical Co., 2234 E. 75th St., Chicago 49, Ill. **Circle D-9 on Reader-Service Card**

Pigment Binder

Morpatex 50 . . . is an effective binder for gold, copper, or aluminum powders such as are used in metallic-pigment printing.

The binder resists drycleaning and laundering, has a soft hand, and does not discolor on ageing. The product protects metallic powders from tarnishing caused by perspiration and forms stable mixtures with metallic powders by extension of the emulsion with water.

Storage life of the binder is a minimum of three months; after mixing with pigments, storage life is over a month. Textile Dept., Morningstar-Paisley, Inc., 630 W. 51st St., New York 19, N. Y. **Circle D-10 on Reader-Service Card**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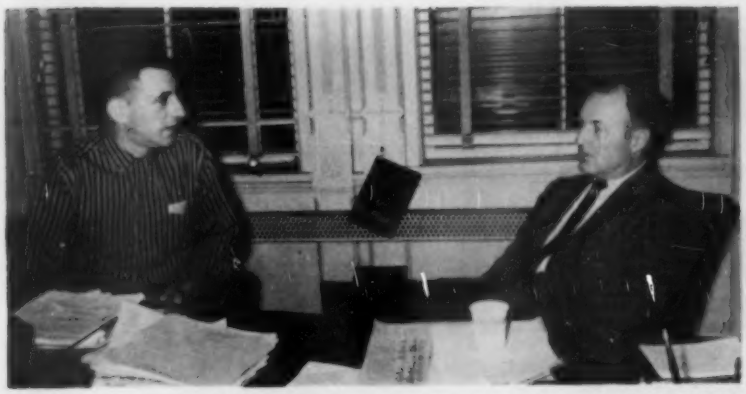
USF-Aspinook Turns Loss Into Profit



WILLIAM LE PINE, president of Arnold's AFL-CIO union, and J. HAINES SPENCER, company vice president, discuss mutual problems in a friendly way. Union's cooperative attitude toward necessary changes was a big factor in the decision to stay in business.

In 1957, it was a tossup whether the Arnold Plant, USF-Aspinook Finishing Div. of Gera Corp., was going to continue to operate in New England or quit. Management took stock of the situation and decided to stay. Keys to present-day success are—

- **A basically sound plant**
- **A cooperative union**
- **A modernization program that has cut costs**

JUST THREE YEARS AGO, the Arnold Plant, USF-Aspinook Finishing Div. of Gera Corp. at Adams, Mass., had to make a decision that was vital to Gera and to the community. Faced with competition from newer plants in lower-wage areas, and in a period of shrinking textile production, management had to come up with the decision to quit or go on. Here's what had to be faced.

To quit in New England would have brought to an end in that area the rather tortuous course of the old U. S. Finishing Co. and the Aspinook Co.

Back in 1942, the entire Arnold operation in both Adams and North Adams was liquidated. The Adams plant, called the Jones Div., was taken over by the Aspinook Corp., which also acquired Pacific's Lawrence, Mass., plant, a plant at East Hampton, Mass., Union Bleachery in Greenville, S. C., and Apponaug Print Works in Apponaug, R. I. The Jewett City, Conn., plant of Aspinook was headquarters for the group.

The organization was headed by Barney Armour, and on his death a syndicate under Barney Sobeloff took over. The syndicate disposed of Union Bleachery to the Cone interests, sold East Hampton to D. B. Fuller, liquidated the Lawrence plant, and turned Apponaug over to F. E. Brown. The Jewett City plant and Arnold's Jones Div. were set up as the Aspinook Co. by Albert List.

Then the remaining U. S. Finishing Co. plants at Sterling, Conn., Norwich, Conn., and Hartsville, S. C., were combined with Aspinook to form USF-Aspinook Corp.

Combine Couldn't Last

Business conditions did not favor the operation of the combine; and first Sterling, then Jewett City, and finally Norwich were closed down to lighten the load and tighten the operation.

In the early 1950s, Albert List purchased Gera Corp.; and U. S. Aspinook, now down to the Arnold and Hartsville plants, became a part of Gera.

The natural question in Adams was, "Will Arnold be shut down?"

To quit would have meant the end of an operation started in nearby North Adams in 1862 by Harvey and Oliver Arnold and expanded in 1929 by the building of the Adams plant. And a shutdown would have meant the loss of jobs for 750 people in an area already suffering from low employment rates.

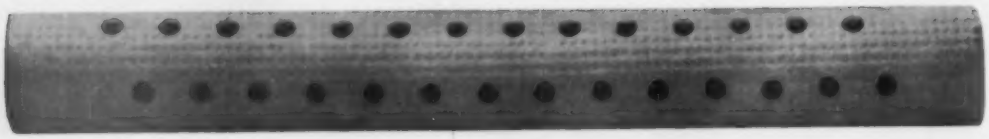
To go on, it was obvious that money would have to be spent on the plant to bring production costs in line with competition. Modern equipment that required less labor to operate was the primary need, and these changes would require full cooperation from the plant's AFL-CIO union.

Good Points Outweigh Bad

A critical examination of the plant and its potentials brought up the following facts:

1. The plant layout was relatively

CONTINUED ON PAGE 84



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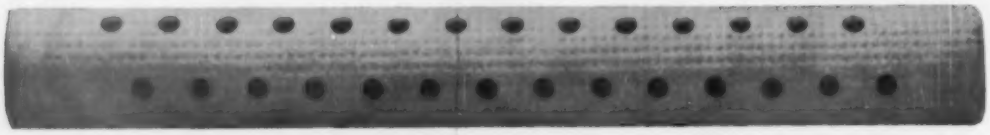

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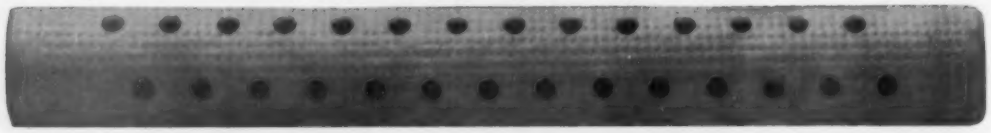

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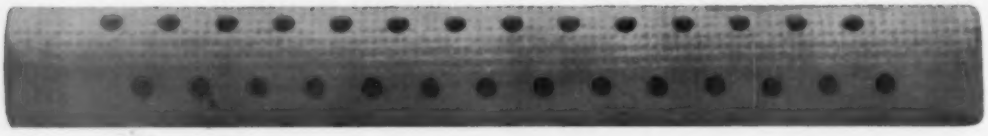

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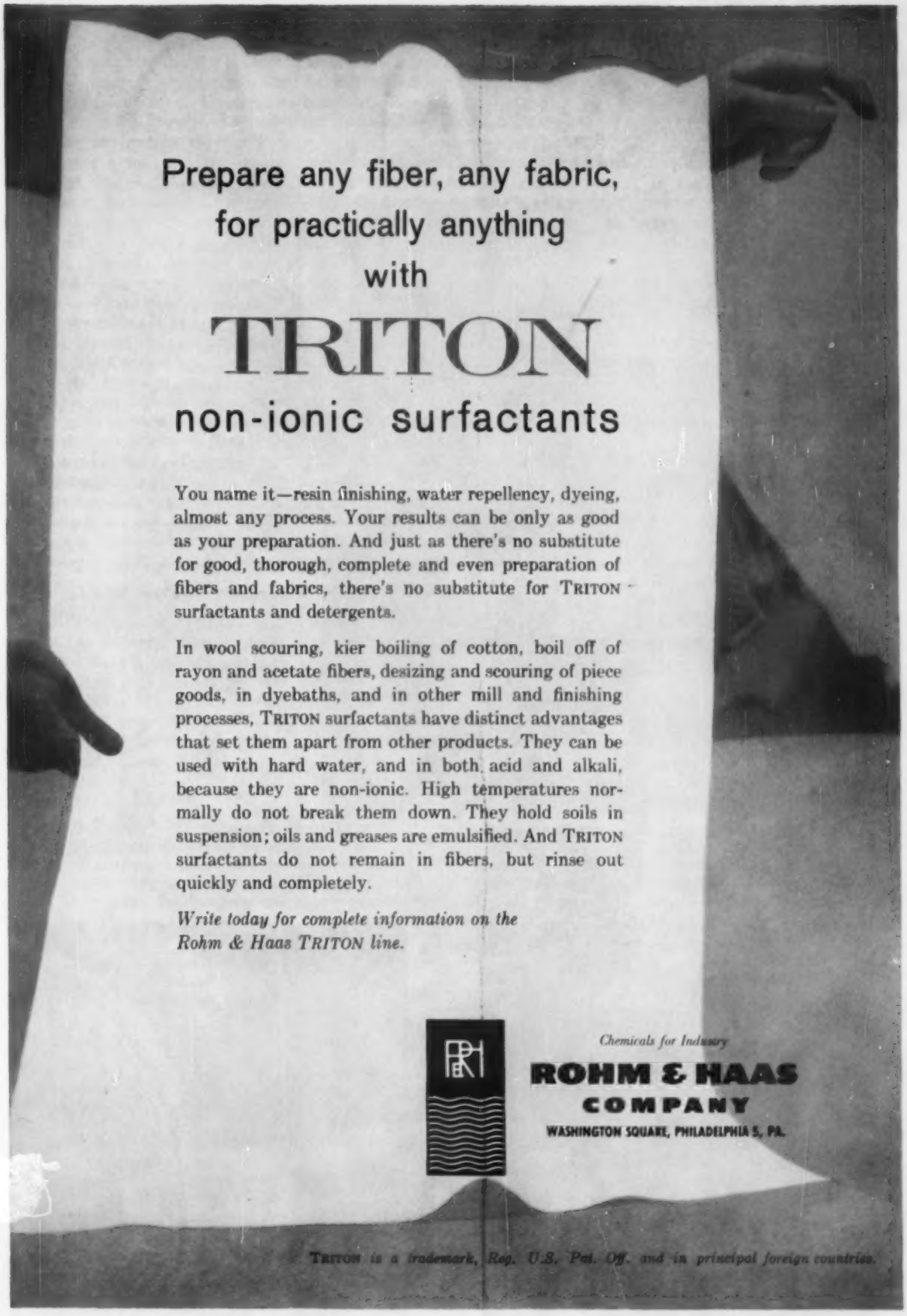
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modern. A one-story production area offered as good facilities as many more-modern plants.

2. Operating personnel was of excellent quality. Local people, steeped in textile-printing lore for two and three generations, made up the bulk of the workers and supervisors in key operations.

3. Arnold Print Works had built up and maintained an excellent reputation for a quality product in the drapery and slipcover fields. Many customers have been on the books for a generation or more.

4. The plant was close to the New York market, which assures overnight deliveries of goods.

On the debit side were high labor costs, complicated by outdated production machines that required more labor to operate than modern equipment does.

And there was the question of how the union would react to losing man-hours to new machinery if it was installed. However, the plus factors seemed to outweigh minus factors; so Gera gave the go-ahead signal.

One of the first steps taken by management was to call in the local union president and executive committee and the vice president of the International AFL-CIO and lay the facts on the table. Gera was willing to spend several hundred thousand dollars on plant improvements, but only if it could be assured of union acceptance of changes in workloads and the elimination of some jobs entirely. The company also proposed an engineering study to determine the most efficient use of labor in open stock, warehousing, and the folding room.

Union Cooperates Willingly

These points were agreed upon with a minimum of difficulty. Local union members were well aware of the drastic decline of textile employment in New England and had faith in Arnold management's presentation of what had to be done to save the plant.

As processes were simplified and more-efficient machinery cut down labor requirements, job losses or transfers have been accepted gracefully. There are no featherbedding problems at Arnold.

As soon as possible, Arnold went to work on the bleach house to modernize preparation methods and get costs in line.

The old singe, desize, kier boil, and chemic-bleach routine was converted to a single-phase operation in which goods are singed and causticized in one operation and piled into bins.

After 4 to 8 hrs, the cloth is pulled through washers that rinse out excess caustic, solubilized starch, and considerable of the natural impurities of the cotton.

From the washer, the goods are pulled into kiers for a conventional peroxide bleach. A very few styles may get a preliminary caustic boil prior to the peroxide bleaching step. Over-all, production in the bleach house has been doubled by these changes and labor costs are less.

Drying equipment has been boosted to take care of the extra production. Automatic weft straighteners see to it that goods are delivered without bias.

Continuous operation of the 14 machines in the print shop was made possible by the addition of scrays behind the machines that permit sewing on fresh goods as old lots run out.

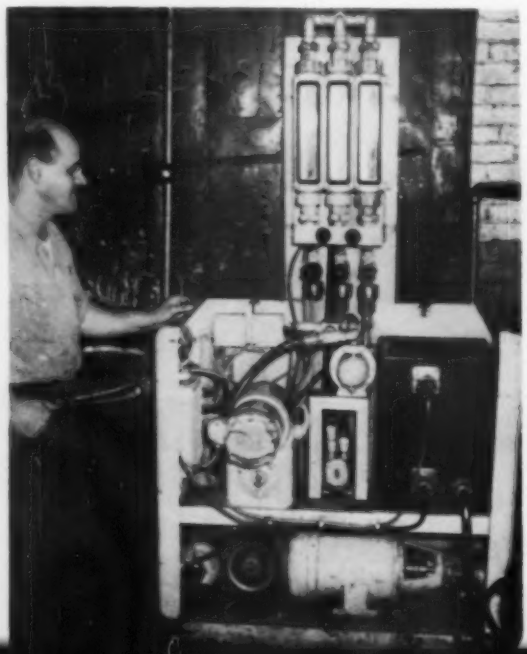
By adding more print-blanket washers, the plant now does at least 90% of its printing without back grays, which cuts out-of-pocket expense by several thousand dollars a month.

Ultrasonic Waves Make Emulsions

In the color shop, Arnold has applied ultrasonic principles to the making of emulsions that are used in printing colors. The ultrasonic generator plus automatic filters for all print pastes and new pumping and weighing equipment cut the labor load

BIG 36-IN. REPEATS running on this machine are the roller printer's challenge to screen-print competition. Print rollers are steel shells carrying 1/16 in. of electroplated copper as the engraving surface. All print rollers are chromium plated to lengthen life of engraving.

THIS ULTRASONIC GENERATOR makes stable emulsions that are used in pigment- and vat-printing formulas. Flow meters deliver water, solvent, and binder solutions at exact rates from storage tanks. Emulsion is formed in small tank at right and is pumped to dispensing tank.



in this department by eight men. Costs for emulsions alone were cut 20% by the ultrasonic equipment.

New Ager Is Big Help

Arnold's pride and joy is a new two-strand neutral ager that produces 100 yds. per min. of thoroughly developed prints. This equipment replaced eight old agers, released eight men for other work, and cut steam consumption from 28,000 lbs. per hr. to about 6,000 lbs. per hr. On the present 90-hr.-week basis, the steam savings of about 2-million lbs. per week represent about $1,100, based on 55¢ per 1,000 lbs. of steam. (Steam cost is figured on normal costs for average finishing plants.)

Finishing Gets Attention, Too

In the finishing department, a new housing and dryer equipment has boosted production of one range to 90 yds. per min. on 3.50-yd. goods. Other ranges have been speeded up by adding more cans between pads and tenters.

Arnold finishes 75 to 80% of its fabrics with resins and cures these finishes in a separate gas-fired oven. One of the old agers is being converted to use as a curing unit to take care of added production.

Handling Costs Cut

Engineering studies in the folding room, open stock, and a separate warehouse have paid off.

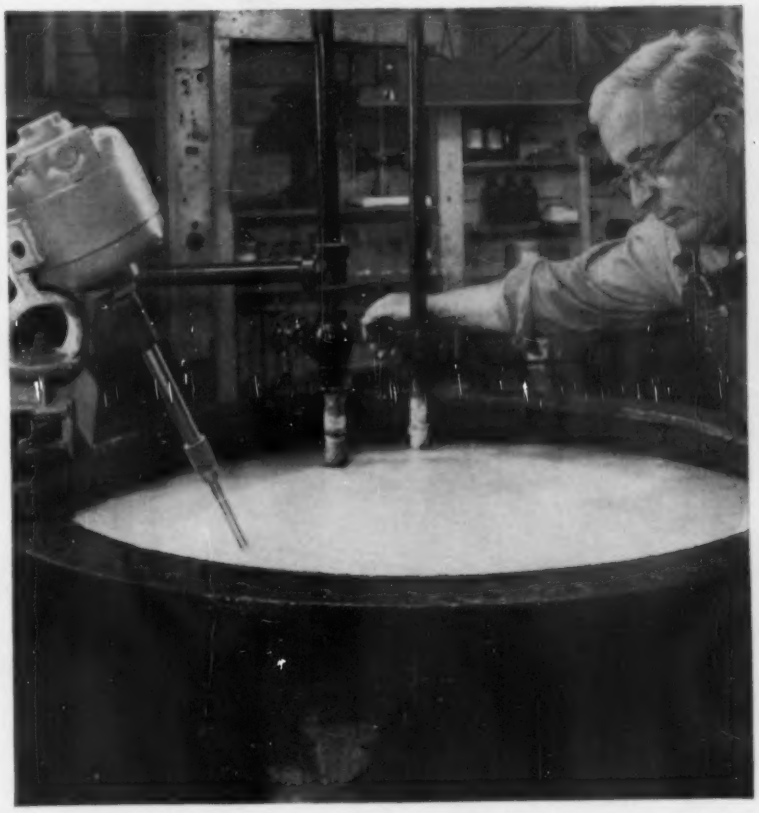
Finished goods are placed on a conveyor after hooking off or rolling and are packed for shipment or sent on to open stock, which is on the second floor. A conveyor system within the open-stock department is now being installed.

At a separate warehouse in town, Arnold has installed a conveyor system that has trimmed labor costs at that point.

Management is currently conducting a study to see how maintenance costs can be reduced. The entire operation at Arnold shows evidence of the will to live and the courage to spend money to keep the operation on a competitive level.

Says J. Haines Spencer, vice president: "We're in the black now; and with a reasonable volume of work, we have every confidence in our ability to make money in the future." Talk like that sounds good to Adams people and Gera stockholders alike.

HAGAN COAGULANT AID SOLVES COLOR PROBLEM FOR WOOLEN MILL



J. J. O'Donnell Woolens, Inc. produce cashmere and high quality ladies' woolen goods, specializing in pastel shades. Located downstream of a steel mill, a sewage plant and several other woolen mills, the periodic high organic color and detergent content of Blackstone River water created a difficult clarification problem. Even with heavy alum dosages, color removal was poor, frequently necessitating reprocessing.

Over two years ago, the plant adopted the use of Hagan Coagulant Aid No. 18 during periods of high color. Alum dosage has been reduced by 25%, with good floc formation and sedimentation. Color removal is now excellent.

Hagan Coagulant Aids are nontoxic, easy to handle, and produce a large tough floc that speeds settling time and reduces carryover.

Hagan Aids may be dry-fed or slurry-fed as desired. Write for Bulletin 410-12-2 for information on the complete line of Hagan Coagulant Aids.

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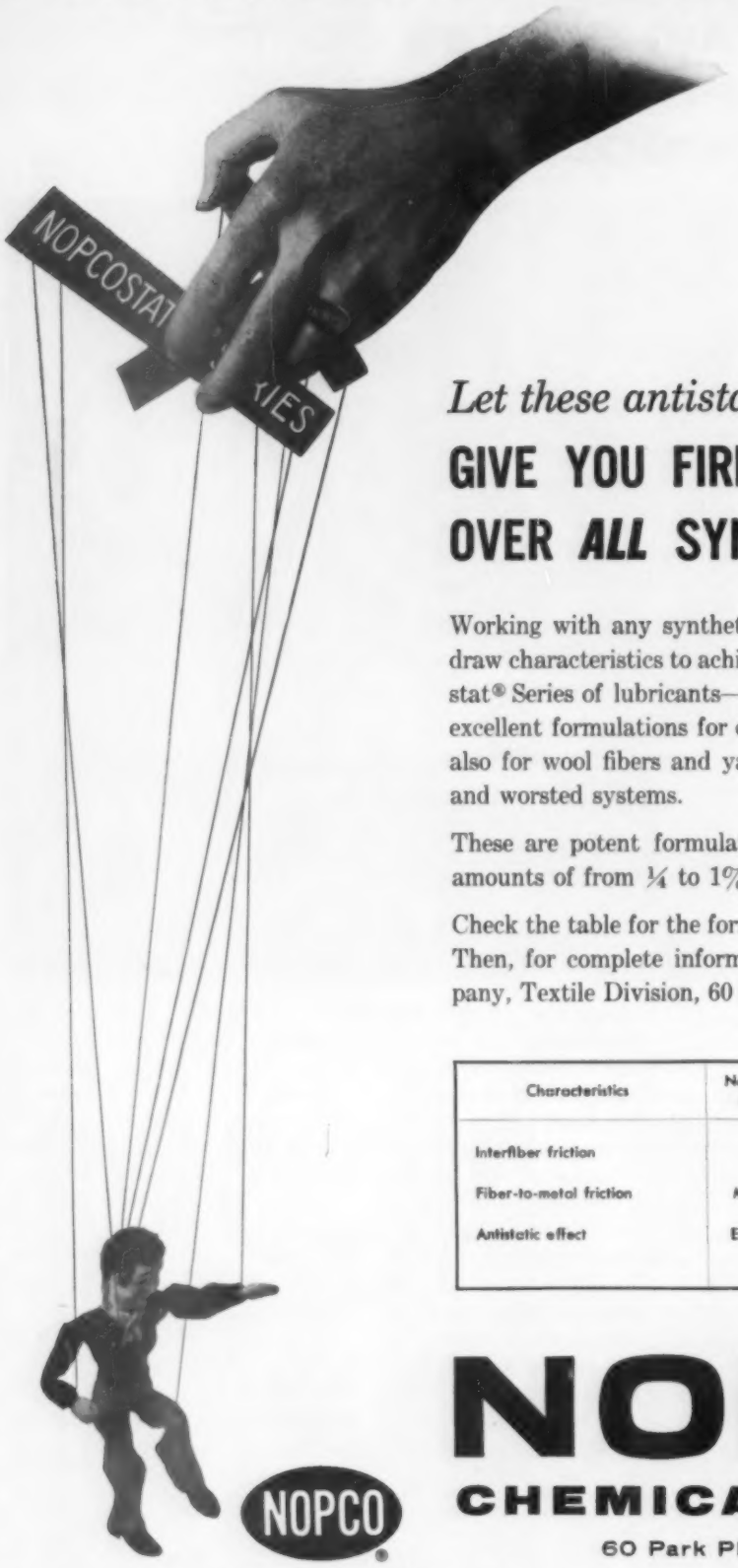
CIRCLE 85 ON READER SERVICE CARD 85

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU



Let these antistatic lubricants

GIVE YOU FIRM CONTROL OVER *ALL* SYNTHETIC FIBERS

Working with any synthetic fiber, it is necessary to alter the draw characteristics to achieve balanced processing. The Nopcostat® Series of lubricants—products of Nopco® research—offers excellent formulations for cellulose, polyester and acrylic fibers; also for wool fibers and yarns and yarns processed on woolen and worsted systems.

These are potent formulations, achieving desired results with amounts of from ¼ to 1% owf.

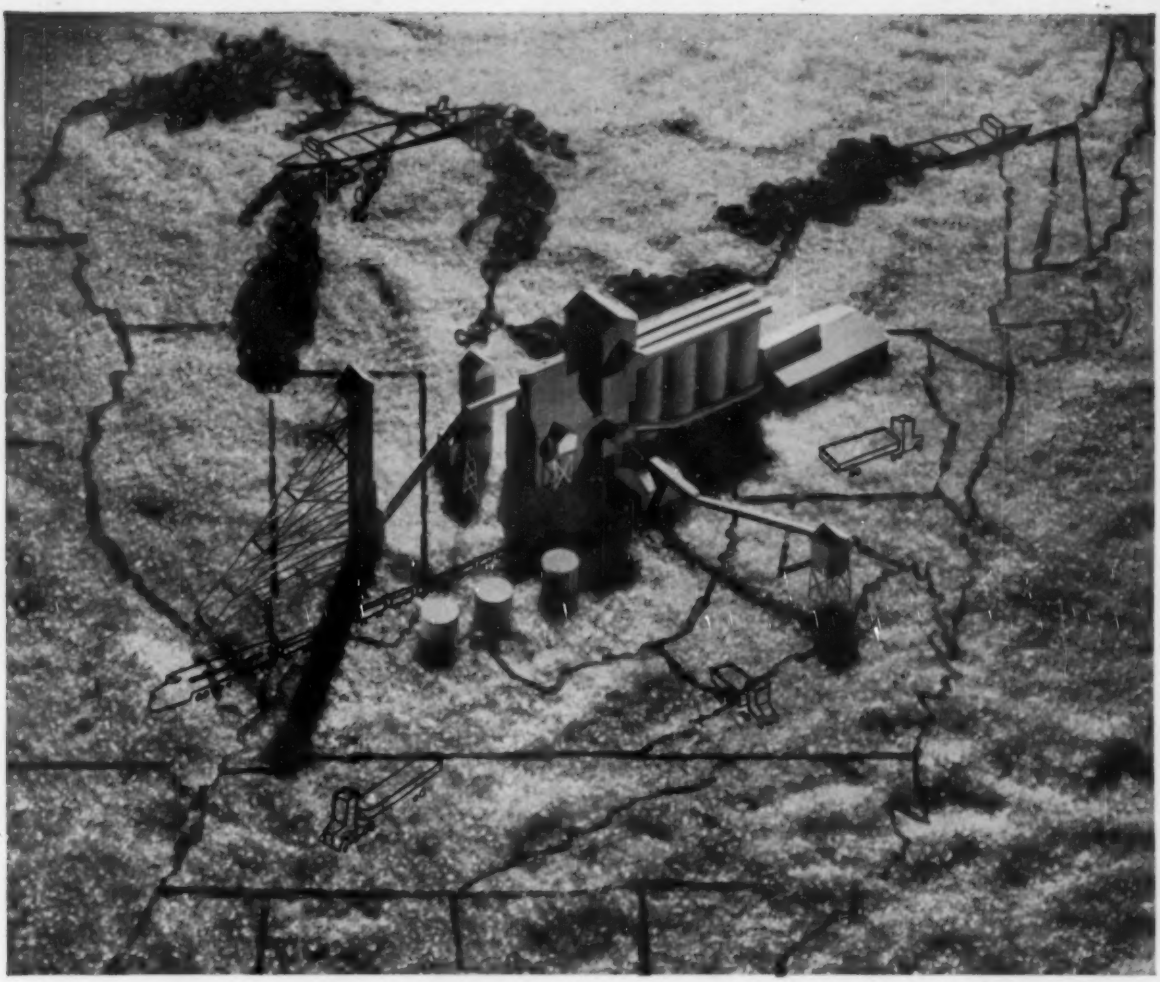
Check the table for the formulation that best meets your needs. Then, for complete information, write Nopco Chemical Company, Textile Division, 60 Park Place, Newark 2, N.J.

Characteristics	Nopcostat AS-40	Nopcostat LV-40	Nopcostat 2152-P	Nopcostat 2152-X
Interfiber friction	Low	Medium	High	High
Fiber-to-metal friction	Medium	Medium	Low	Low
Antistatic effect	Excellent	Excellent	Excellent	Excellent

NOPCO
CHEMICAL COMPANY

60 Park Place, Newark 2, N.J.

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Boston, Mass. • Chicago, Ill.



Morton's Fairport mine offers the textile industry a new, domestic source of rock salt

Located 29 miles east of Cleveland on Lake Erie, Morton's new Fairport Mine offers a convenient new source of rock salt for textile uses. This new mine can deliver rock salt by boat, truck and rail, whichever way is the fastest, most economical way to serve you.

The new Fairport Mine is but one of Morton's four strategically located American sources of rock salt that assure Morton customers prompt, dependable delivery regardless of mill size or location.

Salt and service for every need

In addition to rock salt, Morton produces several high purity grades of evaporated salt for dyeing operations. Morton Chemical Grade '999', for instance, is recommended whenever commercial calcium free salt is required. As the only nationwide salt company, Morton can supply the kind of salt and service you require.

MAIL COUPON TODAY!

☐ Please have a Morton representative contact me about Morton's Rock Salt Service.

☐ I also would like additional information about Chemical Grade '999.'

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INDUSTRIAL DIVISION

Dept. **TW2**, *110 N. Wacker Drive, Chicago 6, Ill.*

NEW LOW-COST PERMANENT SOFTENER FOR...

Emulsifiable
A-C® Polyethylene

OFFERS SUPERB "HAND" PLUS

- HIGHER ABRASION RESISTANCE
- IMPROVED TEAR STRENGTH
- EXTRA CREASE RESISTANCE
- REDUCED NEEDLE CUTTING

Whatever fabrics you finish, you can benefit from the new textile finishes now being formulated with A-C Polyethylene.

Already widely accepted as a *softener and finishing agent* to impart superb "hand," the new emulsions containing A-C Polyethylene benefit every type of synthetic and natural fiber in some way over other textile finishes. In addition to better "hand," they provide higher abrasion resistance, improved tear strength, extra crease resistance, permanence through multiple cleaning cycles, and better sewability through reduced needle cutting.

In wash-and-wear finishes, for example, A-C Polyethylene overcomes loss of "hand" and tear strength when used along with the thermosetting resins commonly employed in finishing wash-and-wear.

Write today for more information. Why not find out all about this new advance in textile finishing? Your textile chemical supplier either has an A-C Polyethylene finish on hand or can formulate one for your specific needs. Anionic, cationic and nonionic emulsions are available to fit all needs. (We are manufacturers of resins, not finishing emulsions.) Or write to us direct for complete information at the address below.

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A TEXTILE WORLD Refresher

Preparation and Bleaching—

9. The Continuous Systems

- The four common systems
- How the single-stage system works

By **PROF. KENNETH S. CAMPBELL,** Dept. of Textile Chemistry, N. C. State College School of Textiles

The bulk of cotton goods that is bleached today is bleached continuously with hydrogen peroxide. Some progress is being made with sodium chlorite in continuous processing. Equipment for continuous scouring of cotton piece goods, described in an earlier article in this series, is also used for bleaching or a combination scour and bleach.

In a truly continuous bleaching system, once the machine is filled and the initial delay time (up to 1 hr.) has taken place, as long as fabric is fed in, it may be taken out completely bleached and ready for washing at speeds up to several hundred yards per minute indefinitely. The actual operating speed for a given bleaching formula theoretically depends upon the quantity of cloth that can be held in storage in the J-box; more practically it depends upon the speed with which the bleached cloth can be satisfactorily washed.

Aside from the washing problem, bleaching-range speed is a function of both the capacity of the J-box and the required bleaching reaction time; so if bleaching time can be safely decreased, speed can be maintained with smaller and less-expensive equipment. Some work is in progress along these lines, and it may make continuous bleaching feasible for medium- and small-sized plants for which the equipment cost and/or space requirements are now too great.

Multistage scour		Bleach	Single-stage combination
Caustic	3 to 4%	0.1 to 0.2%	0.4 to 0.8%
Silicate	.....	1.5 to 2.2	1.5 to 2.5
H_2O_2(35%)	.....	0.75 to 1.5	2.5 to 3.5
Borax	.....	.....	0.3 to 0.6

THE BASIC FORMULAS for the two-stage and single-stage continuous peroxide-bleaching methods given here point up the difference in chemical costs.

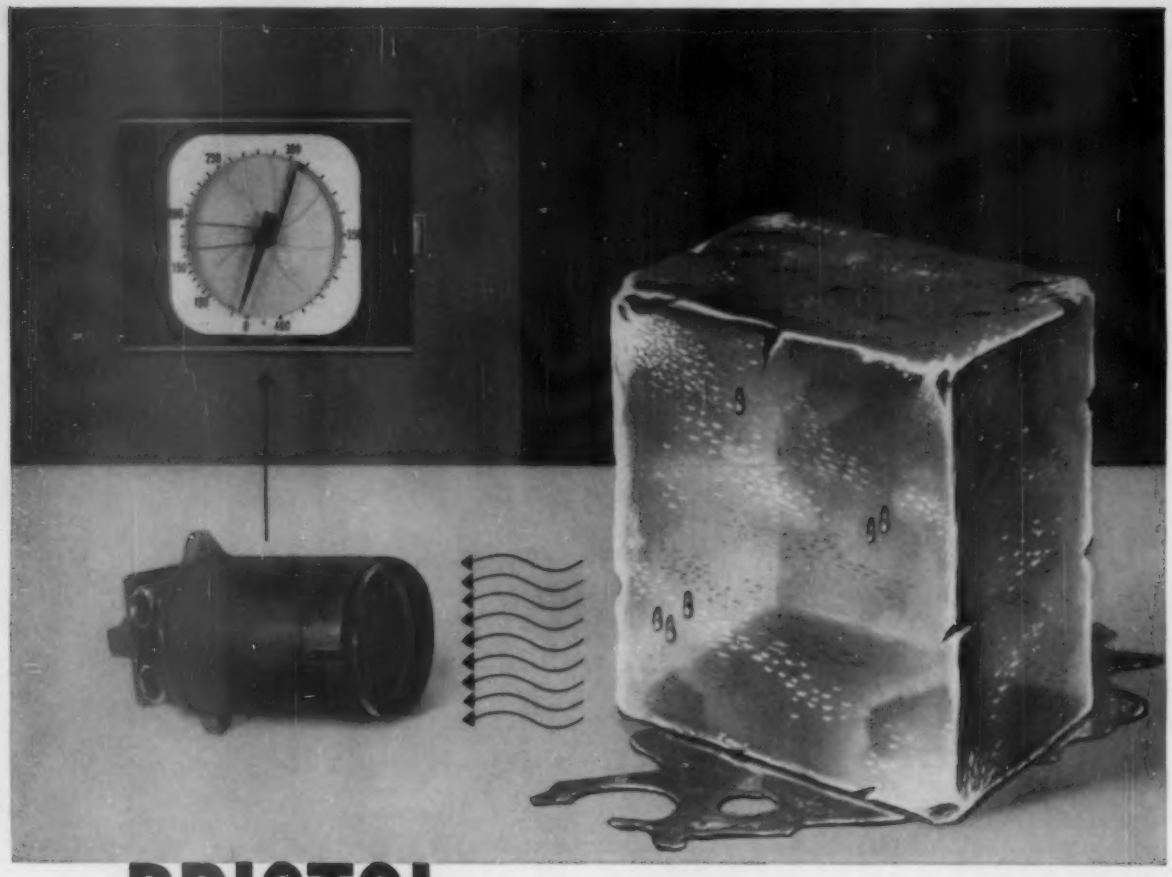
Four Systems in Use

There are currently at least four continuous bleaching systems that differ in important respects and are available to the large-volume bleacher of cotton textiles. These are: (1) a single-stage process for steam scouring and bleaching in one pass through one J-box, (2) bleaching without the use of sodium silicate, (3) a combination sodium hypochlorite-hydrogen peroxide process, and (4) sodium chlorite bleaching. All utilize the pad-steam principle.

For about 20 years the normal continuous bleach consisted of two stages: (a) an alkaline scour and (b) an alkaline peroxide treatment. This method could be carried out in two repeated steps or routings through a range consisting of one saturator, one J-box, and one set of wash boxes or if greater production capacity was required, in one step passing through two such ranges in tandem.

A one-step scouring and bleaching system has been feasible for some time for knitted fabrics that are soft and made from relatively clean yarn. Recent improvements in formulations and equipment have made it possible to bleach a wide variety of woven fabrics by the one-step method. The formula is based on hydrogen peroxide, sodium silicate, caustic, and borax and is used with a mechanically simpler adaption of the earlier Du Pont-type J-box.

The chemical costs of the operation are higher by 20 to 30% than the older two-step method; but 50% less labor costs, 30 to 40% less utilities cost, lower initial equipment cost, and smaller space requirements are advantages. Goods processed in this way have increased absorbency and better hand. Fluidity values are slightly higher than with the multistage process but remain at safe levels.



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...and many other substances; web processes or products; conveyed, rolled or extruded products; and stationary objects.

0-200° F and other ranges to 1100° F • Direct reading charts, scales in F or C • Calibrated interchangeable head units • Automatic built-in ambient compensation • Easy emissivity compensation

Here's the first radiation pyrometer that really gets down to 0° F.

It's the Bristol Velotron Pyrometer System—so sensitive you can sight the radiation unit (at lower left above) on your hand and get an accurate temperature indication.

And on the high end, spans and ranges are available up to 1100° F or corresponding ranges in degrees Centigrade.

Charts and scales are direct reading, in degrees F or C, even on the lowest ranges. No laborious calibration runs, calculations; no curve consulting needed! And you get famous Bristol Dynamaster* Recorder accuracy —proven in thousands of installations.

Ambient temperature compensation is automatic, completely contained in recorder unit (no third unit needed), and allows use in ambients up to 135° F.

A simple knob adjustment allows compensation for emissivity characteristics of target material from black body on down.

Interconnection cables are standard copper wire; no special, preselected lengths required.

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Darker shades of polyester fabrics and their blends are more in demand than ever.

In step with this trend, Eastman offers an expanding series of polyester dyes, *providing the best all 'round fastness characteristics of polyester dyes currently available.*

Specifically developed for use with polyester fibers, Eastman Polyester Dyes exhibit outstanding fastness to washing, light, sublimation, crocking, perspiration, dry cleaning and wet pressing.

Equally important are their excellent processing characteristics...good build-up, good exhaustion and outstanding leveling properties. Thus, darker shades of navy, brown and grey are economically obtained.

Dyeing with Eastman Polyester Dyes is easily accomplished with carriers or under pressure at elevated temperatures. Fibers can be readily dyed in tow, tops, stock, or fabric forms. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose or wool can be easily dyed in dye-becks.

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Eastman Polyester Dark Red FL
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4% Eastman Polyester Blue 3RL
6% Eastman Polyester Blue BLF
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Material: Polyester
Bath Ratio: 30:1
Dyed at Boil

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by **EASTMAN CHEMICAL PRODUCTS, INC.**, subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the West Coast through WILSON MEYER CO., San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In Canada through CLOUGH DYESTUFF CO., LTD., St. Laurent, P.Q.

CIRCLE 91 ON READER SERVICE CARD 91

Control Is Key to Success In this Finishing Operation

Dodgeville Finishing Co., Inc., is getting good results at its Blacksburg, S. C., Div. by dyeing and finishing methods that are—

- **Simple but effective**
- **Controlled at every point so as to be reproducible from lot to lot**

SIMPLE PROCESSING UNDER EXACT CONTROL is Dodgeville's recipe for finishing lightweight man-made-fiber fabrics. The plant specializes in finishing nylon, rayon, and Dacron marquisettes and nylon taffetas and sheers.

The marquisettes are mainly of 52x30 construction, and the taffetas are more-closely woven of 70-den. nylon yarns.

The principal uses to which these fabrics are put are for window curtains and dress goods.

The great majority of the yardage is finished in white or pastel shades, but there is also a demand for medium and dark shades.

How Goods Are Prepared

All goods are swung off into trucks from the original package and sewed into 4,000- to 5,000-yd. lots. Ends are sewed up to make a continuous run, and the goods are carefully batched on a perforated beam.

The beam is wrapped with muslin over the perforated area to help diffuse the liquors that will be used in boiling-off and dyeing. The loaded beams are transported by monorail from the gray room to the preparation and dyeing area.

The goods are boiled off in an open stainless-steel tank equipped with a circulating pump that forces the boil-off liquor from the inside of the perforated beam to the outside of the fabric.

Dodgeville uses synthetic detergents and a mild alkali to remove sizing and dirt from the goods, and the temperature of the bath is kept close to the boil.

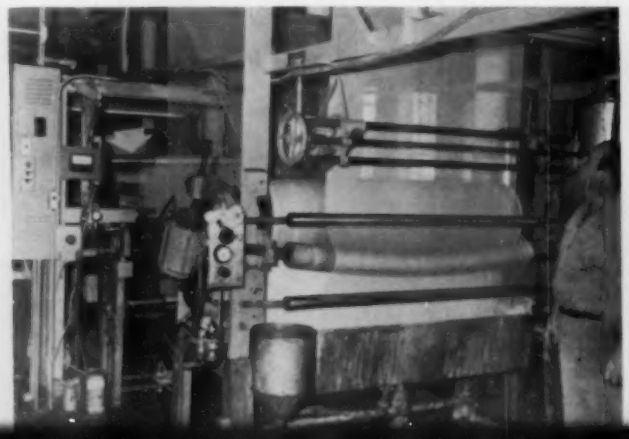
Although man-made-fiber fabrics are relatively free of foreign matter, the boil-off operation requires about 2½ hrs. to get an absolutely clean base for subsequent dyeing and finishing.

Goods Can Be Dyed on the Beam

If medium or dark shades are required, the goods are dyed right in the boil-off machine. The principal colors used are disperse or neutral-dyeing acid dyes for the polyester or polyamide fibers and fast-to-light

BOIL-OFF AND DRYING EQUIPMENT is set up compactly. Power hoists convey boiled-off goods to pad-can drying range.

PAD-TENTER RANGE is especially set up to process light fabrics. The weft-straightener unit (arrow) operates automatically.



direct dyes for rayon.

The dyes are carefully selected from these groups to suit the dyeing conditions, the fiber, and customer requirements. Management is understandably reluctant to be specific as to exact formulations because success of the process depends so greatly on the right dyes for the purpose.

The dyeing process is as exact as accurate weighing, time and temperature control, and expert supervision can make it.

Goods that are to be finished in white or pastel shades are given a rinse after the boil-off and are hoisted out onto a let-off in front of a pad.

Excess water is removed by the pad, and the goods are led onto a stack of cans for drying. A careful balance between pad and can speeds is provided by a P.I.V. drive that is mounted so as to serve both units. No dancer roll is used.

Tension at this point must be well controlled so as to produce goods that can be framed to the required width; and at the same time, pickage is maintained close to gray-goods figures.

Jigs Handle Taffetas

Dark shades on nylon taffetas are dyed on standard jigs. The goods may be prepared on the perforated beam and dried and rebatched into suitable size rolls for the jigs, or they may be scoured and dyed on the jigs. Choice of methods usually depends on the load on the boil-off machines or on other conditions that might affect quality, delivery, or the economics of processing.

Most Yardage Handled in One Run

Dodgeville's primary producers are two modern, gas-fired pad-tenter ranges that are equipped to apply dye and finishing materials and to dry and cure resin finishes in one run.

The frames are equipped with electric-eye weft straighteners on the entering end; and at the delivery end, a second set of electric eyes monitors the weft as it leaves the tenter.

If crooked weft is being delivered, the delivery-end unit registers the fact as an imbalance of electric current on ammeters that are easily visible to the back tender. Adjustment for the fault can be made at this point, although the action is of course applied at the entering end of the tenter.

Most Finishes Based on Resins

Dodgeville produces a range of finishes that are based on urea-formaldehyde, melamine, or polyvinyl-acetate resins, either singly or in combination. By juggling formulations, anything from a light, crisp hand to a stiff bouffant finish can be obtained.

The goods are also dyed on the pad-tenter range by incorporating pigments, disperse, or acid dyes in the resin mix. Much of Dodgeville's work calls for white or light shades, and the pad-tenter range makes an excellent one-run unit for color and finish.

Whites are produced with optical brighteners. Samuel G. Hunter, plant manager, says: "You can say there are more shades of white than any other color." A glance over various lots of finished goods in the put-up room confirms the statement. Along with true whites, there are whites tinged with green, blue, and pink; but all of them are whites to the customer's eye.

Flash Curing Does the Trick

The gas-fired tenter housings are capable of producing more heat than can normally be expected from steam-heated dryers, and Dodgeville uses the extra heat to advantage.

By experiment, settings for entering- and delivery-end temperatures for nylon, Dacron, and rayon fabrics have been established that give an adequate cure to the resins. Normal production is at a rate of 65 yds. per min.

Nylons are run at 300° F. for the entering end and are raised to 360° F. before the goods leave the housing. Dacron may be processed at 400° F. at the delivery end. Mr. Hunter points out that drying and curing temperatures that work well for this installation might not be suitable for other setups.

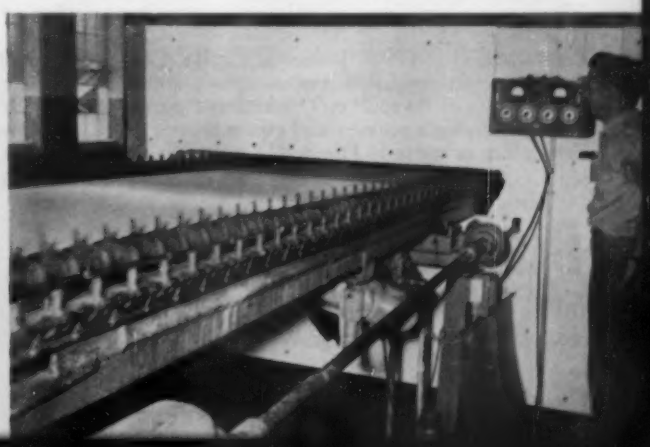
"We've found the right balance between tension, temperature, and time for our various styles and finishes and are able to duplicate any set of conditions at any time," he says.

Goods delivered from the tenters are generally ready for put-up at that point. Some styles may be calendered to break down a very stiff finish to a more-mellow weighty hand.

A final inspection is given at the examining machines, where the goods are also rolled for shipment. Some styles are hooked off on a hooker paced to allow the operator time to check quality.

CONTINUOUS OPERATION is aided by Simpson batchers. Here the operator checks weft straightness, which is extremely important.

ELECTRIC EYES (arrow) at delivery end of tenter check performance of weft straightener. Meters indicate delivery-end condition of weft.



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In addition to CMF, Diamond Crystal Louisiana Rock Salt (from the world famous deposits at Jefferson Island La.) has made possible many consistent and marked product improvements. The key? Diamond Crystal Rock Salt is 99% pure at its source. The inherent purity of both CMF or Rock Salt eliminates costly side reactions.

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distinctively different—a unique advance in vat dye chemistry for self and fashion shades

Developed in the laboratories of GDC, Indanthrene Maroon Brown B Infra Paste represents the most important advance in vat dye chemistry in recent years. Although not an anthraquinone or indigo type, this new GDC dyestuff offers all the desirable qualities of a vat dye with greater economy and a distinctive maroon brown shade unequaled by any other manufactured dyestuff.

more than a laboratory development– an important advance in vat dyeing!

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MAROON BROWN B INFRA PASTE

...An original development in vat dye chemistry...A timely fast brown shade that is otherwise unobtainable with a "straight" dye...All the well-known fine qualities of vat dyes, with unsurpassed leveling properties and economy—for the prestige dyeing and printing of cottons and rayons.

INDANTHRENE MAROON BROWN B INFRA PASTE is a development of more than theoretical interest. It is a significant and very useful addition to the dyehouse inventory for running colorfast, fashion-wise shades. The attractive maroon brown tone dyes with the excellent fastness characteristic of vat colors and with top efficiency in dyehouse production.

INDANTHRENE MAROON BROWN B INFRA PASTE in medium depths of shade exhibits a lightfastness rating of 6. Fastness to AATCC Wash Test #4 is rated at 4-5. Fastness to 0.3% chlorine solution is 3-4.

INDANTHRENE MAROON BROWN B INFRA PASTE provides yet another plus factor in its dependable working properties. Speck-free results are inherent from the high standard of Indanthrene Infra Pastes. The color is extremely level dyeing and well suited for regular vat dyeing procedures on conventional equipment. A special printing type is also available. The dye is a "natural" for indoor and apparel shades on cellulosic materials and blends, offering full satisfaction to mill management and consumer alike.

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with many advanced features

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- **New let-off and wind-up**
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Give your cottons and rayons sun-loving characteristics all season long, to meet today's carefree living requirements. Koppers Amanthrene Vats keep their promise, providing the ultimate in colorfastness to direct sunlight, salt air, perspiration, laundering and dry cleaning. These colors, unexcelled in dispersibility, penetrate smoothly and evenly throughout fabrics to give uniform results.

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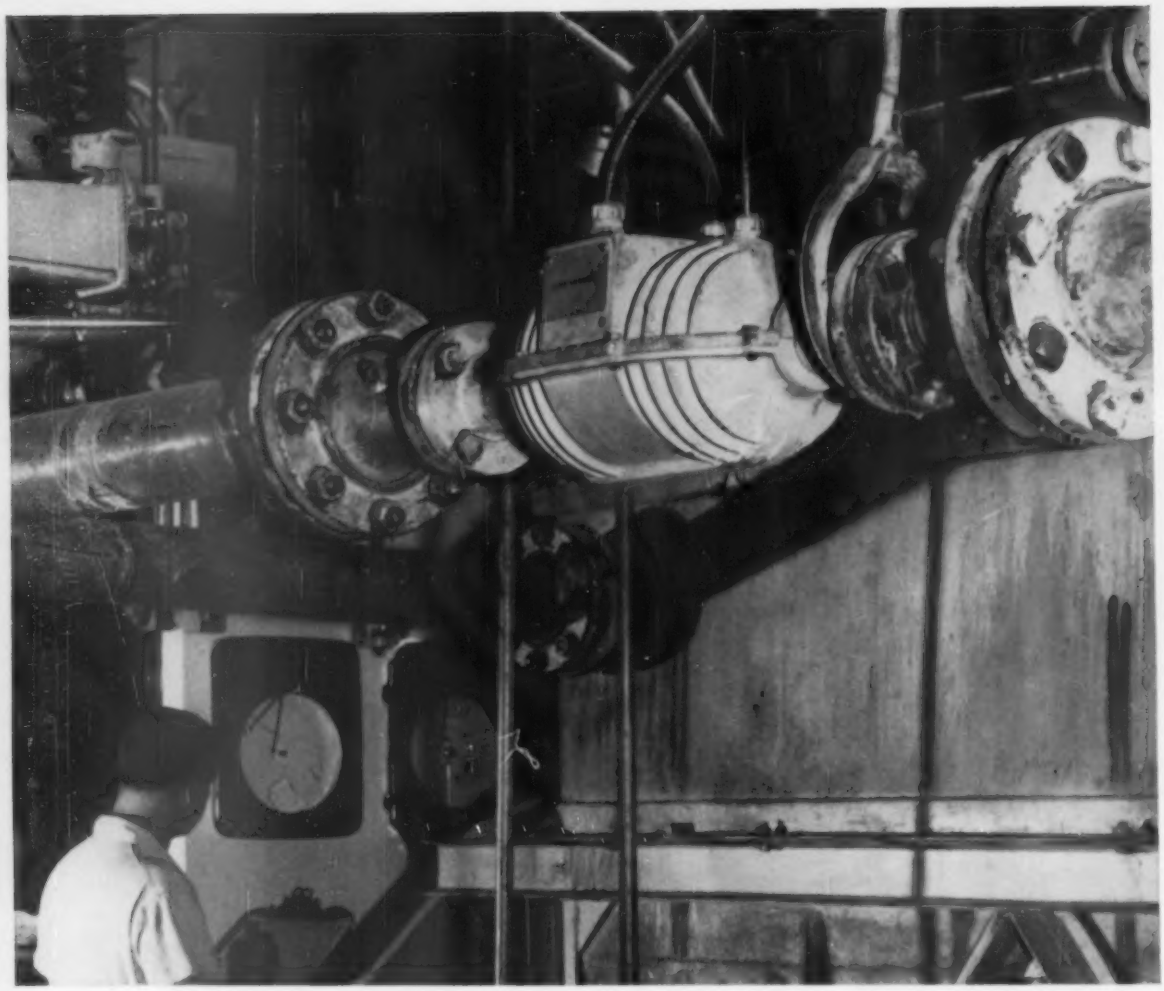


Foxboro Magnetic Flow Meter (top) and Dynalog* Controller (panel) ratio cellulose acetate dope with acid at Celco, Narrows, Virginia.

At Celanese Fibers Co.

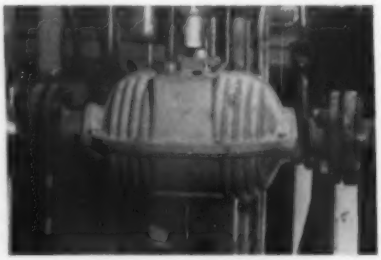
Viscous Liquids metered simply – accurately with Foxboro Magnetic Flow Meters

Cellulose acetate dope—liquids don't come much harder to meter and control than this "toughie" at Celanese Fibers Co., a Division of Celanese Corp. of America, Narrows, Virginia. Yet Foxboro Magnetic Flow Meters measure it simply, accurately — "and with great fidelity," the company reports.

That's because the Magnetic Meter has no flow restrictions of any type — nothing to foul or plug up. Linear measurement is made by electrodes flush-mounted in flow tube wall — accuracy is better than ±1% across the entire scale.

Foxboro Magnetic Flow Meters are ideal for measuring all corrosive chemicals, dye liquors, latex, mill waste effluent — the toughest ones in your mill. Get full details from your Foxboro Field Engineer. Or write for Bulletin 20-14. The Foxboro Co., 482 Neponset Ave., Foxboro, Mass.

*Reg. U. S. Pat. Off.



Six Foxboro Magnetic Flow Transmitters have been in operation at Celanese Fibers Co., Narrows, Va. for over a year. "No mechanical or electronic failures have occurred in either the transmitter or Dynalog Controller since initial installation," Celanese reports.

FOXBORO

REG. U.S. PAT. OFF.

How Vulcan Produces Coated Fabrics

The Vulcan plant of Reeves Bros., Inc., at Buena Vista., Va., is a major producer of several types of industrial coated fabrics. Its success with this kind of work comes from—

- **Expert blending of various latices**
- **Painstaking application methods**
- **Rigid quality control**

CONSTANT RESEARCH, PATIENCE, AND PRECISION keep the Reeves Bros. Vulcan plant in a competitive position in the industrial coated-fabrics field.

The present plant is about six years old and is light, airy, and kept in very clean condition in spite of an operation that tends to get messy very easily. Principal producing units are 23 spreaders or knife-coating machines and two calenders.

Vulcan's coatings are all based on rubber, either natural or synthetic; and in most cases any one coated fabric may require several different compounds to build up a suitable coating for a specific purpose.

The laboratory's job is to find the right combination of rubbers to get initial adhesion to the fabric backing, then suitable intermediate materials to build up the coating, and finally the right compound for the finished layer or layers.

Patience is required because even very lightly coated fabrics always require several passes through the coating machines, and heavy blankets for offset printing require 65 runs to build up a 75-mil. rubber coating.

Good control of the amount of material to be deposited in any one run comes from a combination of exact formulations applied very simply on a knife-and-roller spreading machine.

Vulcan also uses calenders to apply rubber plastisols to fabric backing, but coating thickness cannot be so precisely controlled in calender applications as by the knife spreader.

Vulcan's production ranges from 1.6-oz.-per-yd. Army dress raincoat material to the heavy offset-printing blankets. In between are fabrics designed to make inflatable life rafts and vests, truck tarpaulins, gas-meter diaphragms, and newsprint blankets.

Fabric backings in regular production include cotton, nylon, and Dacron.

All goods received at the plant are suitable for coating as received. In some cases the plant can handle fabrics right off the loom, but in others the goods must be thoroughly scoured or boiled off to remove oily matter or other foreign substances that would prevent good bonding of the coating to the backing.

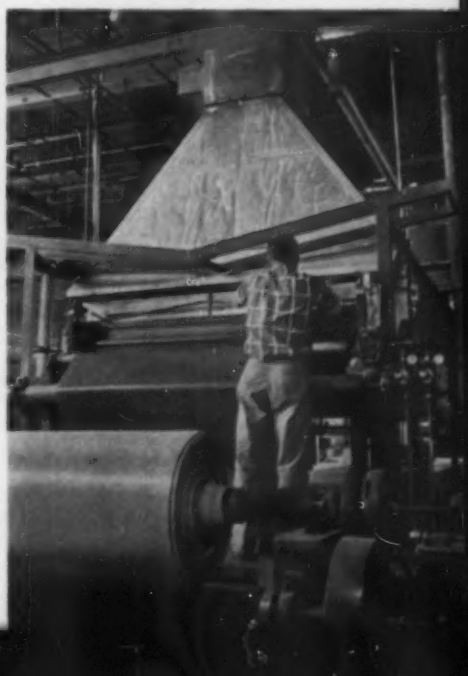
Backings that will wind up in offset and newsprint blankets are wet out in hot water and dried on cans under tension so that they will not stretch in service.

How Coatings Are Built Up

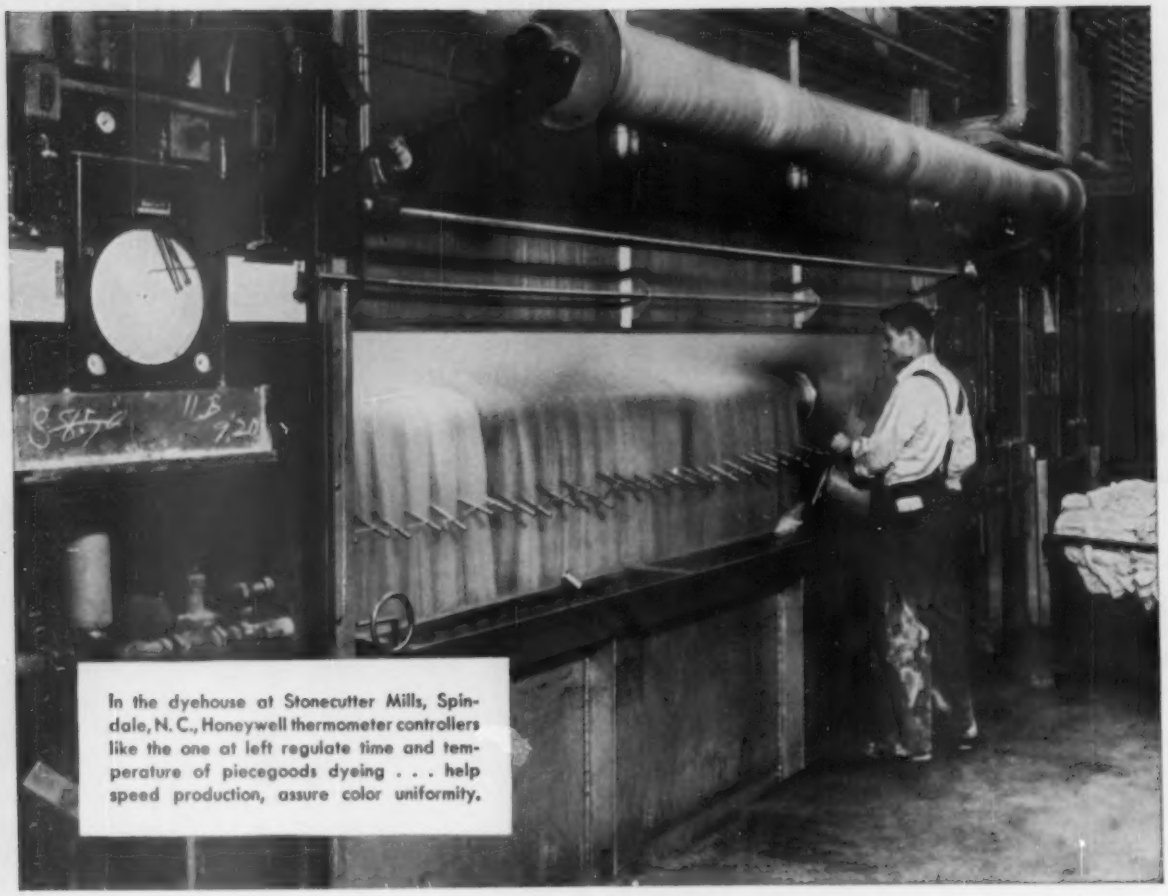
The first few coating layers that are applied to a backing are generally formulated to provide good adhesion to the fabric and to subsequent coatings. Nylon and Dacron fabrics require special attention at this operation because few compounds adhere well to them.

Goods to be coated are mounted on a let-off built into the stand that carries the knife and the roll over which the goods are led at the coating point. The coating compound is either ladled onto the goods or allowed to fall onto the fabric from an overhead supply drum.

RUBBER COMPOUNDS are mixed thoroughly in heavy mills. A shearing action is set up at the nip because the rolls revolve at different speeds.



PRECISION COATING is possible on knife-and-roller units such as this. First coats are usually very tacky, and goods are kept separated by leader cloth.



In the dyehouse at Stonecutter Mills, Spindale, N. C., Honeywell thermometer controllers like the one at left regulate time and temperature of piecegoods dyeing . . . help speed production, assure color uniformity.

Honeywell controls allow quick changeover in dyeing, keep quality high at Stonecutter

Stonecutter Mills dyes a variety of fibers . . . including nylon, Dacron, Orlon and acetates . . . in a variety of forms, *often all in a single day*. Dyehouse workers have to be skilled in quick changeovers . . . and their dyeing controls must be both accurate and flexible, for each fabric calls for a different dye, a different temperature, a different time cycle.

Though dyeing temperatures range from 130° to 212° F . . . and must be accurately held for cycles of 8 hours and longer . . . Honeywell dye control systems consistently assure production of top-quality dyed goods.

In your own mill, to increase efficiency, reduce costs and guard quality . . . to modernize a single process or an entire mill . . . call on Honeywell for complete, specialized textile instrumentation. From opening room to cloth room, Honeywell systems give you dependable, flexible control of temperature, pressure, humidity, regain, dew point and other variables.

For valuable help in matching controls to equipment, efficiently and economically, call on Honeywell at the planning stage. A Honeywell field engineer is as near as your phone. MINNEAPOLIS-HONEYWELL, Wayne and Windrim Aves., Phila. 44, Pa.

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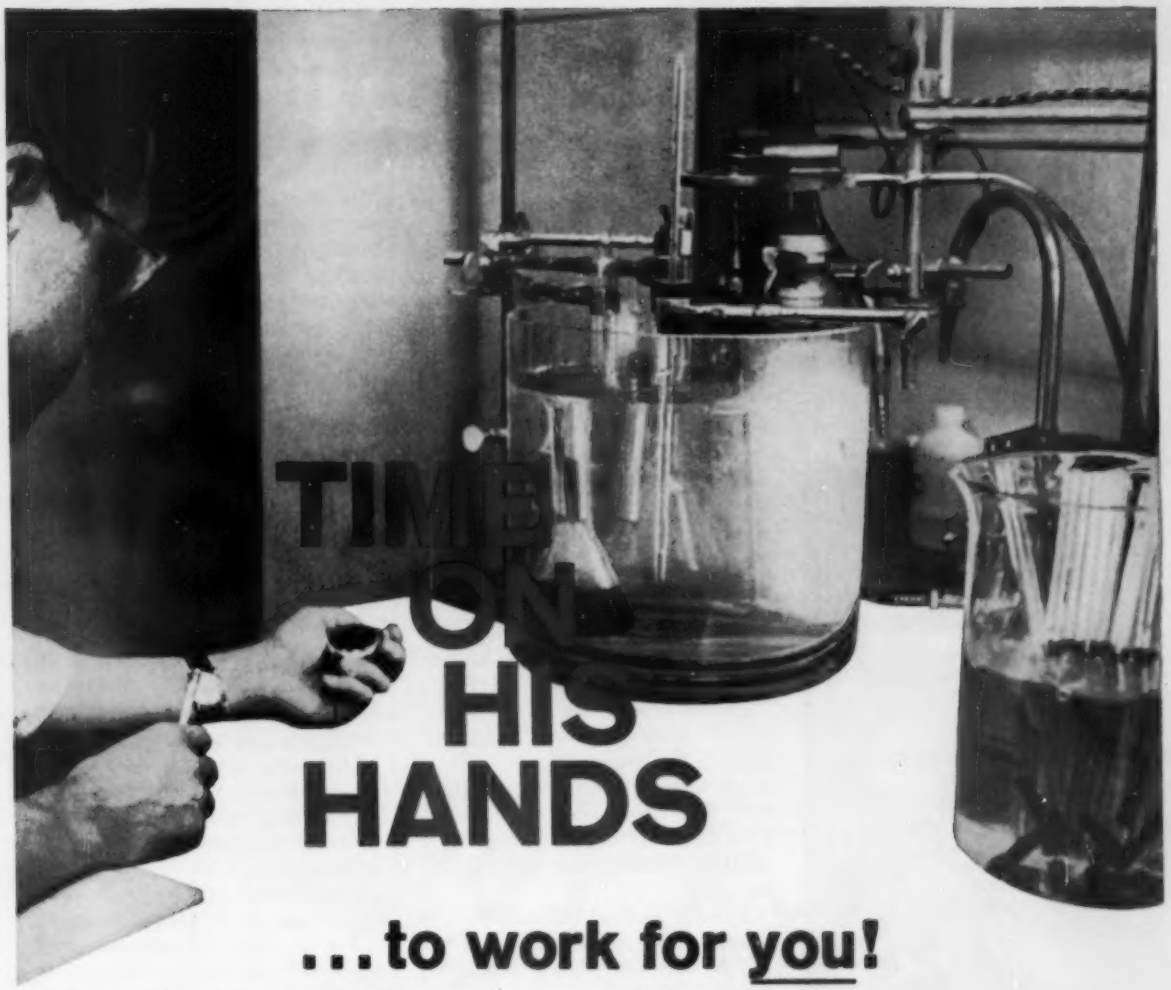

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PHOTO: This SOLVAY technician is measuring fluidities of a customer's cotton samples.

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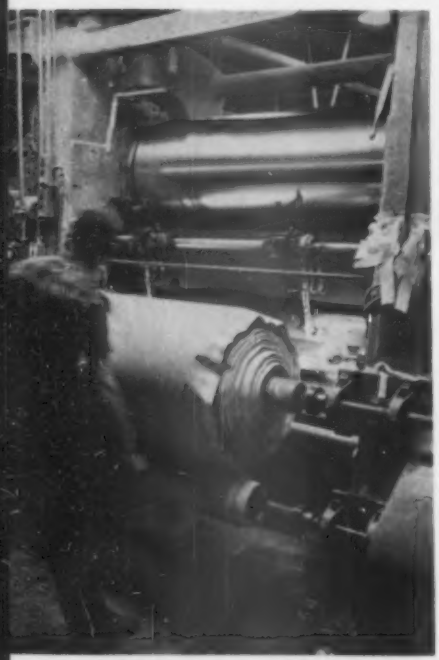
The knife is positioned very carefully over the fabric at a clearance calculated to permit just the right amount of coating compound to be carried under it by the cloth.

The coated goods pass into steam-heated ovens where the volatile matter in the coating is evaporated and led off through exhaust stacks.

To cut down porosity and to avoid blistering, the coatings are built up about 1 mil. of thickness per pass under the knife. Taken across the board, Vulcan's goods will average out to seven coatings per finished piece.

The slow build-up of a good coating is the reason why Plant Manager D. E. Sherrill says, "Although we handle a million yards of fabric a week, our actual production is in the neighborhood of 150,000 yds. packed out."



SECOND COATING ON A CALENDER is preceded by a tacky friction or tie coat. Separating cloth is wound off on the lower roll.

Two Curing Methods Are Used

Vulcan uses festoon dryers and autoclaves to cure the various compounds that are applied to the fabrics.

Lighter goods, such as the 1.6-oz.-per-yd. nylon rainwear fabrics, are cured in the festoon dryers.

The average curing temperature is 275° F.; and the goods remain in the dryer for 30 to 90 mins., according to the type of coating and the weight of the goods.

Drum curing in the autoclaves is resorted to for calender-coated fabrics and the very heavy items such as the printing blankets.

In this operation the goods are wound under tension onto a perforated beam. A separating layer of gray goods is wound on with the material to be cured to prevent adhesion of one layer to another.

The tension applied in winding aids in producing a smooth surface. End wrappers are long enough to insure that tension is applied to all the material to be cured.

The loaded beam is wheeled into the autoclave and locked up. Live steam at 40 to 50 psi. is introduced, and the cure is completed in 30 to 90 mins.

Buffing Smooths Surface

A final step on some goods is grinding and buffing to exact thicknesses, an operation that also produces a very smooth and polished surface.

Tolerances, particularly for the printing blankets, are extremely close. These coatings must be within ± 0.5 mil. of specified thickness to pass inspection.

Other lines are kept within ± 1 mil. for coatings up to 15-mil. thickness, ± 2 mils. for 40-mil. coatings, ± 3 mils. for 40- to 60-mil. coatings, and ± 4 mils. for 60- to 80-mil. coatings.

COATED GOODS are being delivered here from Vulcan's newest 70-ft.-long coating range.

Coated fabrics are ground and buffed by pulling them under tension across a flat bed over which is mounted power-driven grinding and buffing equipment. The machine is rigidly constructed, and the grinding component is mounted so that micrometer control of clearances can be maintained.

Diaphragms Are Fabricated

One of Vulcan's important lines is the complete manufacture of diaphragms that are used in gas meters.

The diaphragms are based on cotton fabric that is coated on both sides with Thiokol ST, a compound that is especially suited to the job. The coated fabric is cut into pieces large enough to fit each of several standard sizes of gas meters, and each piece is formed into a cylinder that is fitted at each end with tinned-steel rings. The open edge is buffed and cemented gas tight.

Accordion pleats are next molded into the cylinder, and the diaphragms are then fully cured. Over 70% of the gas meters in use in the U. S. today are fitted with Vulcan diaphragms.

Vulcan also laminates coated fabrics that are going into life rafts. In this operation one layer of goods is laid out warpwise, and another layer is laid over it in bias-cut sections. Joins in the bias-cut sections are buffed and cemented, and the two layers are cemented together as a final operation.

This type of construction provides strength and flexibility and is helpful in the final fabrication of the goods into multicurved units.

Quality Control Is Rigid

The plant maintains a development laboratory and a testing laboratory. Raw materials, compounds, gray goods, and the finished products are carefully checked against specifications of buyers or plant-set quality standards.

Finished material is tested for ageing, abrasion, flexibility, cold crack point, heat resistance, thickness, permeability, oil and fuel resistance, stretch and strength, and other factors that are important in special-purpose applications.

Vulcan keeps 25 out of 325 employees busy in the fields of product development and quality control. The program is paying off in products that are being improved constantly and are finding ready acceptance in the market.

How To Remove Spots On Piece Goods

• Spots, whether on gray goods as received or picked up in finishing, are a constant headache to mill men. Here's how an experienced chemist tackles the problem.

By WALTER FREDERICK

STUBBORN SPOTS AND STAINS usually can be removed from goods in process if they are caught early and treated properly.

The plant chemist often works at a disadvantage in treating spots because when they are in the goods as received he does not know the source. Also, light spots may go undetected until processing begins. Such spots may darken during bleaching or dyeing and may even cause local weakening of the fabric.

As soon as spots or stains are detected, samples of the goods containing them should be sent to the laboratory for identification. An ultraviolet light source is an invaluable aid to the laboratory as a means of checking spots for oil content. All oils fluoresce under ultraviolet light to some extent, and mineral oils show up clearly.

Oil spots very often carry finely ground bearing metals, which can be a source of fiber damage in peroxide bleaching. Iron is the most common contaminant and can be detected as follows:

Make a solution of 50 ml. distilled water and 50 ml. HCl, and add 5 ml. of a 10% solution of potassium ferrocyanide. Wet the spot with this solution. If iron is present, the spot will turn blue. To remove the iron, boil the sample for 1 min. in a solution containing 1% Igepon and 1% ammonium bifluoride.

If the spot no longer responds to the iron test, the dyehouse can go ahead with a similar treatment on the jigs.

The oil component of a spot can usually be removed by treating with Varsol followed by soaping.

Not all tan or brown spots are caused by oil or rust. Vegetable matter, floor dirt, and other stains picked up in transit usually respond to a chlorine or chlorite bleach.

Tar spots are a common defect in gray goods. If the goods are going into dark shades and the spots are not too large or frequent, normal processing will reduce them to the point where they will go unnoticed.

For white goods or light shades, the tar must be removed. The surest way to get rid of tar is to hand-spot the goods with a mixture of a solvent and a saponifiable oil and then treat the goods in caustic soda. The soap formed by the reaction with the caustic will usually float out the tar. The process is expensive but is about the only recourse if perfect goods are required.

How To Treat Dye Spots

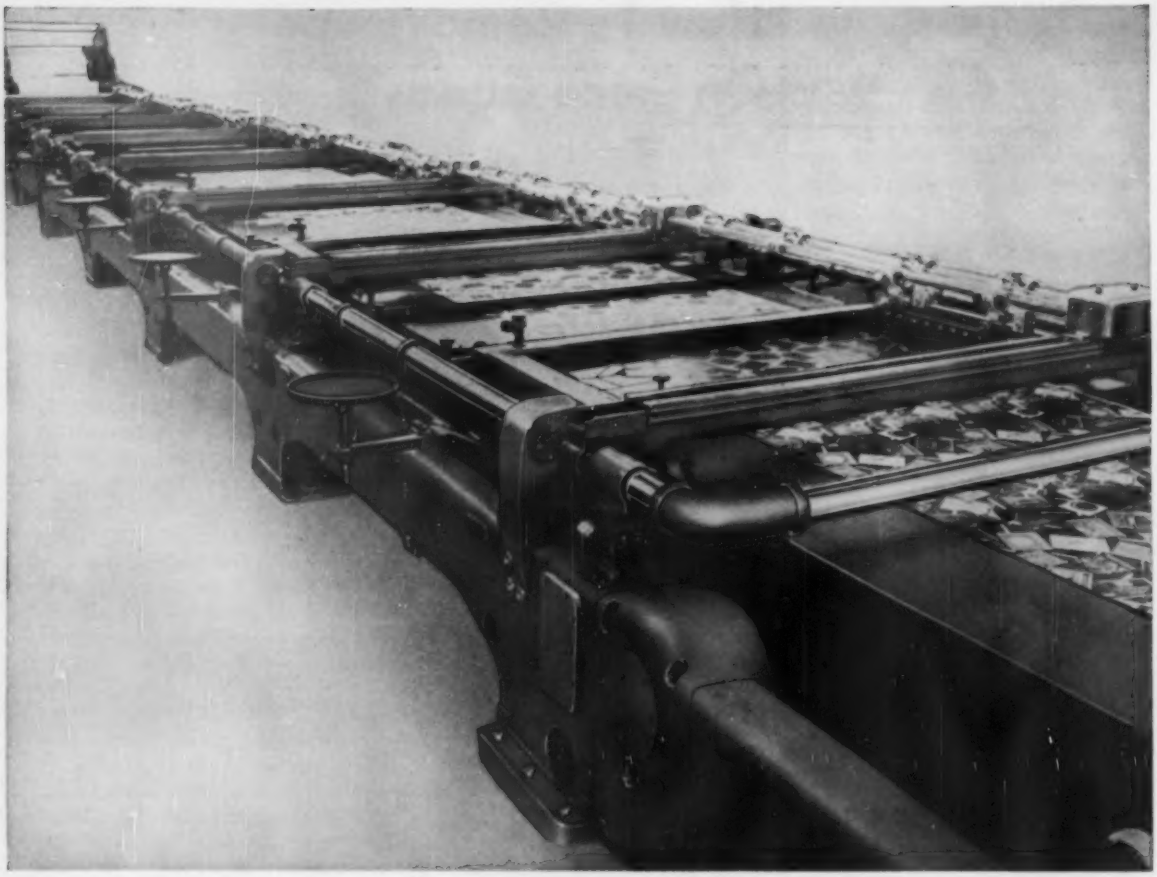
Colored spots generally originate at some stage of dyeing or printing. A great many such spots can be completely removed by caustic and hydro or acetic acid and Rongalite. Vat colors cannot be stripped, and about all that can be done for goods spotted with vat colors is to shunt them into dark shades.

Occasionally dye spots that do not respond to stripping can be removed by a chlorine or chlorite bleach or by treating with a 1% potassium-permanganate solution followed by cleaning with sodium bisulfite.

Quite often spots come from pad boxes, jigs, or becks that are carrying foamy dye liquors or reducing baths. Foam should be eliminated and can be kept under control by adding silicone-based defoaming agents to the bath.

Another source of iron stains that weaken selvages is careless handling of rolled goods in iron-floored trucks and dollies. Rust ground into the edges of the rolls will almost certainly destroy the affected areas when the goods are peroxide-bleached.

Goods that have iron stains should be routed for a scour in ammonium bifluoride to solubilize and remove the rust. A sequestering agent such as Versene helps to inactivate any traces of iron that might remain after the scour.



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CONTINUED FROM PAGE 51

The bath is let out, and the machine is filled again with cold water. Then 1 lb. of soda ash is added.

At this point in bleaching, Villa Rica has two methods: (1) for light mercerized yarns and (2) for heavy yarns.

For the light yarns, 3 gals. of light chlorine bleach is used.

For heavy yarns 4½ gals. of the bleach is added.

The bath is raised to 130° F. and is run 45 mins.

The bath is drained and refilled with water, 1 qt. silicate of soda, and 4 qts. peroxide bleach. The bath is raised to a boil and is then run 10 mins.

This bath is drained, and a new bath is made with 4 oz. of sequestering agent. Again the method for light and heavy socks differs: 8 oz. of whitening agent is used for light and 10 oz. for heavy.

The bath is raised to 170° F. and run 10 mins. Then it is drained.

The machine is refilled with 2 lbs. of softener, run 10 mins., and drained to complete the bleaching cycle.

Heavyweight bleached socks are extracted for 12 mins. and then tumble dried for 30 to 35 mins.

Villa Rica uses vat dyes for men's mercerized socks and direct dyes for lighter women's and children's socks.

For dyeing direct colors, Villa Rica also uses a basic 100-lb. load of gray goods. Its maize color, for example, is dyed in this way:

1 qt. penetrant oil.

Fill machine with water and fabrics.

2 lbs. scouring agent.

2½ gals. bleach.

Run 30 mins. at 130° F.

Drain the machine.

Refill the machine.

Add 3 lbs. sodium bisulfide.

Heat to 140° F., and run 5 to 10 mins.

Drain and give two cold rinses.

Refill machine with water.

Put 250 grains of Fast Yellow RL and 21 grains of Yellow N into a bucket and dissolve with water.

Add dyestuff to machine.

Add 2 lbs. of penetrant oil.

Heat to 180° F. and run 10 mins.

Add 5 lbs. of salt, and run 15 mins.

Check a sample for correct shade.

Drain dyebath and give one cold rinse. Refill machine and add 2 to 2½ lbs. of softener.

Drain, extract, and dry with the same tumble-drying method used for bleached socks.

Villa Rica dyes one shade of vat color by the same bleaching and dyeing methods used for direct dyes. All other vat colors are dyed much like this method used for blue socks:

Machine is filled with water.

15 lbs. of caustic soda is added.

1 lb. penetrant oil.

Dyebath is brought to a boil.

4,000 grains Blue CLNWP is dissolved in a bucket of hot water.

Dyestuff is added to bath.

100 lbs. of gray goods is put in.

Fabric is run 10 mins., and the following operations are at a boil:

5 lbs. of corn sugar is added.

15 lbs. hydrosulfite is added slowly in three parts.

Dyebath is run 20 mins.

Then the steam is cut off, and fabric is given a running rinse for 15 to 20 mins.

Machine is refilled with water.

2 lbs. of sodium perborate is added.

Temperature is raised to 130° F. and is run 10 mins.

0.5% soap is added.

Bath is brought to a boil and is run 10 mins.

Fabric is rinsed once, and the machine is refilled.

2½ lbs. of softener is added.

Fabric is removed, extracted, and dried.

TIPS TO TROUBLESHOOTERS

How We Check Vat Colors for Bleeding During Bleaching

It is always a good idea to check any colored-yarn goods or goods that have any fast-color yarns in their makeup before the fabric is bleached by any peroxide method. If the colors bleed during bleaching, it is impossible to remove the stains that are formed.

We finally developed a foolproof test that keeps our bleacher out of trouble.

For goods that are not to be mercerized, we first soak a 4x6-in. patch in a 2.5% malt solution for 1 hr. Then we wash the patch in hot water with a little Ucopan Dx or a similar detergent and give it a thorough rinse.

The patch is next immersed for 1 hr. in a cold solution of caustic soda based on 30 ml. of 50% NaOH per 1,000 ml. A thorough wash in hot water follows, and then the sample is soaked in a cold solution containing 15 ml. 35% H_2O and 15 ml. sodium silicate per liter. The patch should be soaked and squeezed out several times to get thorough saturation of the peroxide liquor.

Now wrap the patch as tightly as possible around a glass rod in such a way as to bring colored areas to bear on white areas. We steam the prepared sample for 1 hr. in a bucket prepared as follows:

Lay some damp cloths on the bottom of the bucket so that they will surround the outlet of the steam pipe. Place the glass rod with its sample on top of the cloths, and put a cover on the bucket. Steam flow should be sufficient to keep the temperature close to a regular range J-box.

After the steaming period, we unwind the sample from the glass rod, wash it thoroughly, and dry it.

If the color has not faded, bled, or washed off after this test, it is safe to bleach the goods by normal plant methods.

For goods that are to be mercerized the procedure is the same except that after the malt treatment, we stretch the dried sample on a small pin frame and pour over it a 15% solution of caustic soda. We wash the sample thoroughly in hot water and sour it for 5 mins. with a 0.1% solution of sulfuric acid and rinse thoroughly. Then we follow with the procedure outlined above.—WALTER FREDERICK

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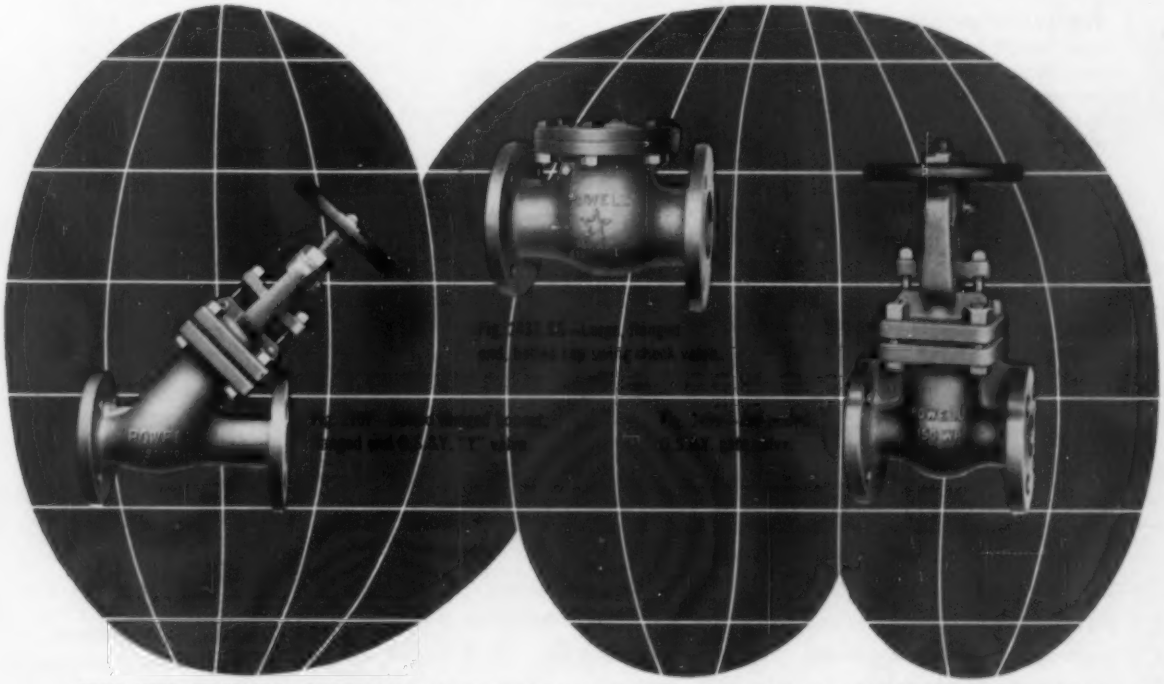

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SCOTT TESTERS, INC.
95 Blackstone Street
Providence, Rhode Island

Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Ten Causes of Telescoping At the Cloth Roller

Technical Editor:

Cloth tends to "telescope" at the cloth roller of our looms as the fabric roll builds up. Can you tell us how to control this telescoping? (1483)

In the first place, it is well to understand what causes telescoping. Some of the main causes are:

1. Cloth not started right on the cloth roll
2. Weak cloth-roll springs
3. One end of the cloth roll going up ahead of the other
4. Broken teeth in the spring-shaft gear or cloth-roll rack
5. Spring shaft bent or binding
6. Worn cloth-roll block
7. Badly worn fillet on the take-up roll
8. Take-up roll not level
9. Slack-woven cloth
10. Bent or sprung cloth roll

Once you understand the causes of telescoping, here are some tips that may help you:

1. Start the end of the cloth correctly at the beginning of the roll. Set the roll tension heavy on the empty roll. Have loomfixers check the cloth-roll spring and racks periodically to be sure they are operating efficiently.

2. Use collars on the cloth rods, keep cloth-rod bearings level, and maintain even tension on the ends of the rods.

3. Use square cloth rods inside wooden shells the full length of the cloth-rod space. Wooden keys fasten the cloth to the wooden shells.

4. Use a 3-in.-dia. wooden tube over the cloth-roll rod. Attach a metal washer to each end of the tube. There's just enough clearance at the end of the washers to allow them to miss the cloth roll stand.

Travelers Wear Out Rings

Technical Editor:

We are having traveler trouble. Our travelers tend to jump and wear out the rings. Ends down are excessive. We use the large-bow type of traveler and have tried the small-bow type in vain. Can you tell us what causes the trouble and how we can stop it? (1480)

It sounds as though your travelers are both "back-tracking" and "inside-tracking" along the ring web. If the traveler you use has too high a center of gravity, the outer foot hangs too low and lags behind the innerfoot. This condition can cause tracking on either side of the ring.

If the traveler tends to jump, you probably have inside tracking caused by contact between the inside foot and the web. A stroboscope should tell you what kind of trouble you have.

Too large a circle causes wear on both sides of the ring. You might be able to find a traveler with a height-diameter ratio between 0.80 (large) and 0.65 (small) that would cure your trouble, but you would have to do some careful experimenting to find out just what size is best for your operation.

The new elliptic travelers have been used successfully by many mills to overcome the troubles you describe. We suggest you experiment with this type of traveler, but before changing over be sure you have selected the right one to avoid further ends-down trouble.

Oil Lifter Rods Sparingly To Keep Oil out of Work

Technical Editor:

Every time we oil the lifter rods on our spinning frames or change oil in the spindle bases, oil gets in the work. Can you tell us how to prevent this trouble? (1486)

If your lifter rods have Oilite bushings, they should require no oiling. With cast-iron bushings, a small amount of lard oil applied once or twice a week should do no harm. Some mills use no oil at all on lifter rods.

As to changing oil in spindle bases, it's possible that your oiler applies more oil than is needed and some of it splashes out. Actually, many mills never change oil in spindle bases; others change oil at intervals of one to three years.

When oil is removed from spindle bases, it should be taken out carefully with a suction or vacuum pump and refilled with extreme care.

Underwear Can Be Knitted From Low-Twist Yarns

Technical Editor:

Will you please tell me the number of turns per inch to put in 26s, 22s, 18s, 16s, 14s, and 12s cotton underwear yarn? (1472)

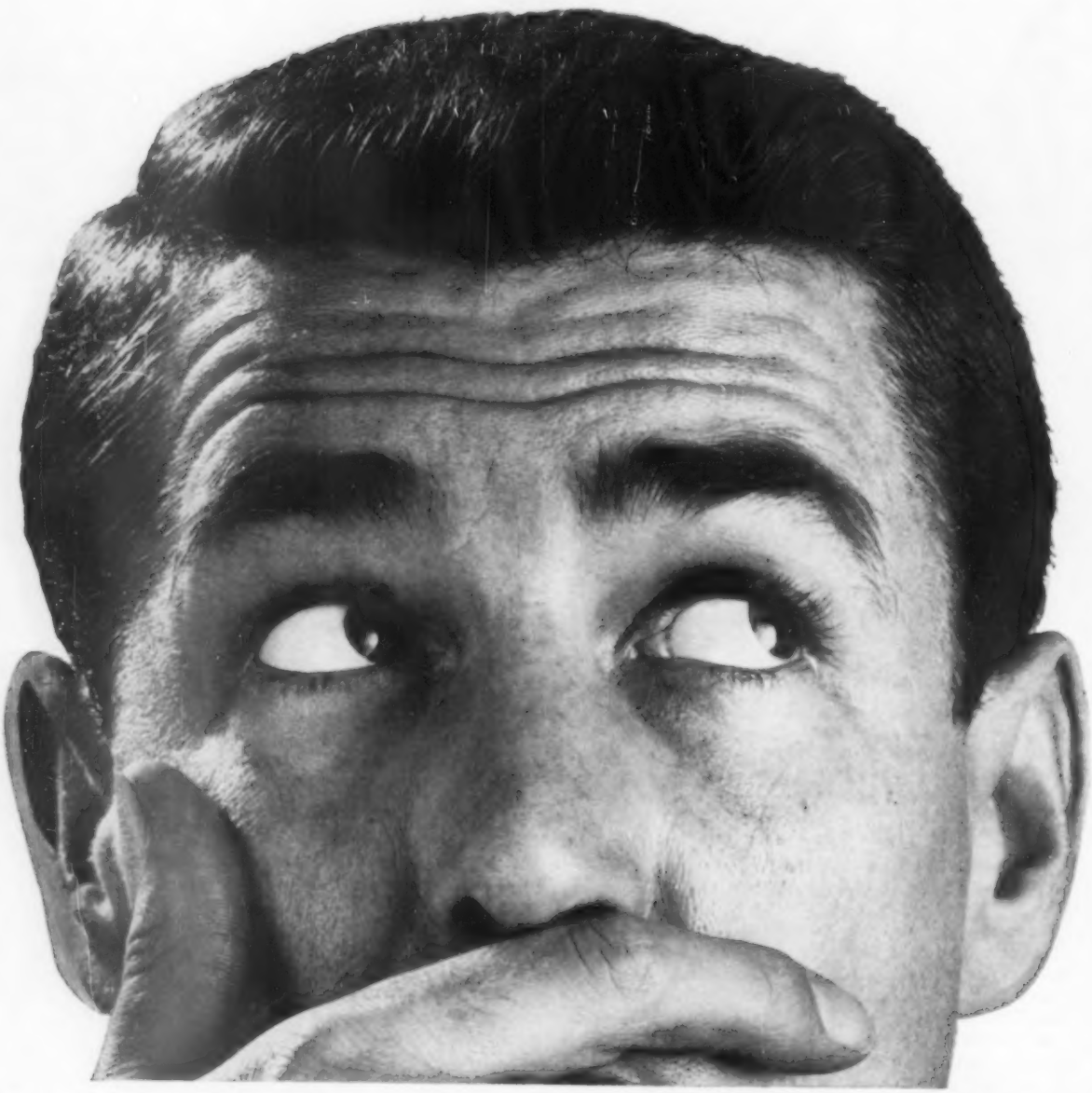
Technical know-how has made it possible for some mills to use low-twist yarns or yarn with practically no twist in the manufacture of underwear. Actually, twist depends greatly upon the quality of cotton being spun, the gauge of the knitting machine, and the type of fabrics to be knitted.

The following figures for turns per inch are average, but they should be used as a guide only. Local conditions and requirements should determine actual twist used.

Yarn number	Turns per inch
26s	16
22s	15
18s	13 to 14
16s	13
14s	12
12s	11

Have you seen all these new ideas in fibers?

Just in case you missed one of the successful new products and processes Du Pont has developed in the past 18 months, we've rounded them up for you in one complete list. Already, many mills are profiting from these developments:



"DACRON"* POLYESTER FIBER—*Type 64* — Dyeable, pill-resistant staple. For worsted-type fabrics such as winter-weight suitings. *Bonded fiberfill batting*—Minimizes fiber leakage of battings in insulated clothing. *Stabilization of warp yarns*—Infrared heating cuts costs, improves uniformity. *Type 61*—High shrinkage staple for industrial uses. *Type 62*—Modified cross-section filament with improved hand and luster, more versatile dyeing and styling for apparel. *Fiberfill batting for furniture*—Greater comfort, ease of care and more durable resilience.

DU PONT NYLON—*New hosiery deniers*—More style flexibility for hosiery. *Du Pont Sparkling Nylon*—Trilobal monofilament yarn used in knitting sparkling nylon hosiery. *Du Pont 420 nylon*—Adds extra wear to cotton denims, twills and sateens. *Type 501 continuous-filament carpet yarn*—High bulk, less fuzzing and pilling, better soil resistance and styling. *Type 707*—Cordage yarn with greater wet and dry strength. *Low-shrinkage drawwound yarns*—Give broad-woven fabrics more uniform dyeing. Better control of fabric width. *Type 280*—Semi-dull continuous filament. For automotive fabrics. *Type 560*—Continuous-filament yarn with trilobal cross section gives improved hand, luster, cover and printability. For lingerie, dresses, blouses. *Improved 30-denier dull*—Better dye uniformity, lower abrasiveness. *Tissue tricot*—Adaption of Schreiner calendering to nylon tricot gives beautiful hand, better cover, lighter weight. For lingerie, sleepwear.

"ORLON"* ACRYLIC FIBER—*"Orlon" 21*—Premium staple. Improved cover, elasticity, resilience, glaze resistance. For bulky knitwear. *Type 25 staple*—For cotton and rayon spinning systems. Superior whiteness and processing. *Type 38 tow*—For two-height pile coating, lining fabrics. *"Orlon Cantrece"**—Semi-dull filament yarn with a rich, luxurious look and feel.

"ACELE"* ACETATE—*40-denier yarn*—Fine denier for 32-gauge tricot.

DU PONT RAYON *"Ondelette"**—Continuous-filament yarn with random-slub effect, high luster. For dresses and blouses, suitings and draperies. *"Civona"**—Straw-like effect. Extra durability. Heavier deniers for millinery style effect. *"Super Cordura"** *Type 272-F*—High tenacity industrial yarn for belts and hoses. *Tinselfil*—High luster, sparkle in a fashion yarn.

"LYCRA"* SPANDEX FIBER—Elastic properties. Makes possible uniquely lightweight elastic apparel—foundation garments, surgical hosiery, etc.

. . . And, in the months ahead, we'll be developing more new products and processes. All of them will mean more profits for customers. That's one of the main reasons it pays to do business with Du Pont.

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Better Things for Better Living...*through Chemistry*

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*DU PONT TRADEMARK

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TOUGH YARNS FOR TOUGH JOBS . . .

. . . HEAVY-DUTY TIRES, for example

Trucks, tractors, buses—wherever heavy-duty performance is essential, Golden Caprolan is superb. Golden Caprolan is a new kind of nylon tire yarn engineered by Allied Chemical.

A new high level of heat stability, plus the superior flex resistance of this tough, versatile fiber, means greater safety and longer life for all types of tires—from automobiles to airplanes to off-the-road equipment.

Other profitable applications of high-tenacity Caprolan include marine rope, conveyor belts, tarpaulins, and webbings—to mention a few.

Caprolan textile yarns are performing well in automotive and home furnishings fabrics.

If you have a tough job, we have the tough yarn for it. Call us for information and assistance in improving your products with Golden Caprolan. Our technical service, end-use development and fiber application staffs are ready to help you.

Allied Chemical

Fiber Marketing Dept., 261 Madison Avenue, New York 16, N.Y.

GOLDEN caprolan®

THE NYLON FIBER BY ALLIED CHEMICAL

Celanese Buys Darvan

Celanese will now produce and market the nytril fiber Darvan.

Celanese acquired the patents, trademark, technical know-how, and world rights for the fiber from B. F. Goodrich Co. last month. Goodrich retains rights outside the textile-fibers field, including plastics applications.

Darvan is now produced in staple form at Goodrich's Development Center in Avon Lake, Ohio. Goodrich will continue to operate the plant for Celanese until Celanese starts producing the fiber with its own facilities.

New Jet Interiors

Collins & Aikman Corp. has furnished new cabin-seat covers and carpet for Eastern Airlines' DC-8B jets that were put in service on Jan. 24 between Miami and New York.

The cabin-seat covers are of 100% filament-nylon matelassé in a raised tear-drop design with outline pick in silver Mylar yarn. The weave is not new for use in Eastern's aircraft, but the use of Mylar is. Part of the seat is in French blue and part in gold.

The custom-made carpet is of 100% Tycora nylon. It is a tightly looped twill weave. The weave is an Eastern exclusive. The carpet in the cabin is French blue and in the lounge lavender blue.

Zantrel-Blended Yarns

Burlington Yarn Co. announced two weeks ago that Zantrel is now available in four blended yarns primarily developed for use by knitwear producers.

One is a 70-30 cotton-Zantrel yarn suitable for men's underwear and outerwear, knitted sport shirts, and men's socks. Another is a 50-50 Zantrel-Arnel yarn for knitted outerwear.

The third blended yarn is 50% Orlon, 40% Zantrel, and 10% nylon. It has a lofty hand. The fourth is 80% nylon and 20% Zantrel. It is suitable for industrial specifications as well as trimmings and braids.

Solution-Dyed Acrilan

Chemstrand announced last month that it has successfully developed a process to solution-dye its Acrilan fiber.

J. P. Stevens & Co. assisted Chemstrand in the spun-yarn evaluation and development of the process.

Initial sale of solution-dyed Acrilan yarns will be offered to hosiery knitters through J. P. Stevens' Yarn Sales Dept. The yarns will be offered in popular hosiery colors.

The price of solution-dyed Acrilan is $1.18 a lb.

New Caprolan Cordage

Plymouth Cordage Co. is producing a new gold-colored rope called Gold-Line. It is made of Allied Chemical's filament nylon, Golden Caprolan.

GoldLine was featured by 27 major boat manufacturers at the National Motor Boat Show at the New York Coliseum last month.

Riverdale's New Fabrics

Riverdale Drapery Fabrics has introduced new Ambassador printed-drapery fabrics of Celanese acetate.

Four of the new prints are called Geneva, Ravenna, Serenade, and Waikiki. All of the Ambassador fabrics are 48 ins. wide and retail for about $3 a yd.

Two New Forms of Zefran

Dow Chemical Co.'s textile-fibers department is marketing two new forms of Zefran, W-2 and W-4, for blending with wool.

W-2 has an average denier of about 2.5. It sells for 99¢ a lb. and comprises various staple lengths. It has an average spinning limit of 8 run.

W-4 has an average denier of about 4.5 and sells for 94¢ a lb. It is also comprised of varied staple lengths and has an upper spinning limit of 6 run.

Both W-2 and W-4 have been developed by Dow to fit into existing processing and dyeing technology standard for wool.

Standard wool emulsions and machine settings are applicable to both W-2 and W-4.

"Golden Sixties" Socks

Jerks Socks-Wovenright's new men's hosiery for spring features golden and burnished colors. The theme is called the "Golden Sixties."

In addition to the new colors, the line features new constructions, new styling, a new price range, and a new length sock.

The new shades include Golden Sun (light gold), Golden Brass (green), Golden Straw (yellow), Golden Bone (yellow-tan), Dark Olive Green, Tempered Brass, Hammered Bronze, Antique Pewter, Burnished Brown, and Metallic Blue.

Two new yarns, Acrilan and Tycora, are being used. Socks made of these yarns retail at $1.50 a pr.

The Commuter, a 9x3 rib of 80-20 Orlon-wool, is a newcomer and retails at $1.

The new price range is at 75¢ a pr. in combed cotton.

An executive (conventional) length style, the Duke, is now retailing at $1.50.

New Fall Rayon Blends

Steveco Textile Co., Alamac Knitting Mills, Beaunit Mills, Spinco Fabrics, Inc., and Earl Loom Fabrics, Inc., are showing fall knitted and woven men's-wear fabrics made of Coloray solution-dyed rayon.

Steveco is offering over 75 knitted fancies in Coloray-and-cotton blends.

Black Coloray is relied on heavily for strong heather bases.

Alamac is using similar blends of black Coloray rayon with cotton.

Beaunit is blending Coloray with Orlon in men's knitted shirts in madras heather tones, and in plain-rib knit, honeycomb, and lace patterns.

Spinco is showing 92-8 Coloray-Orlon woven fabrics. One is a 13-oz. coating and slack fabric and the other a 7-oz. shirting. Both have a worsted hand.

Earl Loom is showing a 50-50 Coloray-Creslan fabric that is crease resistant and washable. It is available in 21 patterns.

New Cotton Campaign

The National Cotton Council will start this spring an intensified year-around consumer advertising and merchandising campaign promoting cotton products centered around a theme called "Cotton Is a Natural."

The Council's advertising effort will be concentrated in consumer media and will feature a broad group of cotton end products.

Trade publications and farm magazines will be used, with particular emphasis on industrial-cotton and cotton-seed products.

A total of 80 consumer, trade, and farm publications will be used in various phases of the campaign.

Cohama's New Blend

Jungo is Cohama's new Arnel triacetate and rayon blended fabric.

Its dyeability is good. When cross dyed, the fabric gives interesting effects. It is machine washable and irons easily.

Acrilan Licensing Program

Chemstrand Corp. has announced a licensing program for its A-Acrilan registered trademark.

The trademark will now assume the status of an ingredient mark under the terms of the trademark-licensing program. The trademark will be used only on fabrications and products that contain virgin Acrilan fiber in percentages established or approved by Chemstrand.

The company has set up specific controls for the program and will inform industry of the program through an advertising, promotion, and publicity program in trade publications throughout the coming months.

Second Spandex Fiber

Vyrene, the second spandex (synthetic elastomeric) fiber to be offered to the textile industry within the last three months, has been announced by U. S. Rubber's Textile Div.

Lycra, the first of the new generic class of fibers, was introduced by Du Pont in October.

The new Vyrene fiber is the core of a fine nylon-coated Lastex yarn introduced last month by U. S. Rubber for use in lightweight elastic fabrics and new garment applications.

New Elastic Naugahyde

U. S. Rubber Co. is introducing a new line of elastic Naugahyde, Chromata, for furniture upholstery.

It is smooth and very supple with a rich look and a dull finish.

Chromata is named for the 20 colors it is offered in, which include high-fashion home-furnishings colors as well as basics.

The 54-in.-wide fabric is elastic-fabric backed, tailors easily, and wears well.

Textured Dacron Filament

Deering Milliken Research Corp. has announced that Dacron filament can be textured and developed with complete uniformity. According to Russell Newton, president of the corporation, the process of texturizing nylon filaments into Agilon yarns has been applied successfully to polyester filaments.

Dacron filament will be processed on equipment designed by Milliken Research for medium-denier textured yarns.

Textured Dacron filaments are expected to go into woven-apparel fabrics and other end uses.

New Blended Fabric

Bloomsburg, Inc., is showing a blended fabric of 39% Multi-Cupioni and 61% high-strength rayon.

The fabric is crease resistant and hand washable and is available in 20 high-fashion colors. The 44- to 45-in.-wide fabric is sold to the trade and over the counter. The counter retail price is under $1.80 a yd.

Knitted Vycron

Beaunit Mills, Fabric Div., has introduced Vycron in knits.

Vycron-Acrilan jerseys in 50-50 blends are offered in solid tones and cross-dyed heathers. Vycron-Acrilan and Vycron-cotton waffle knits are also offered in solid colors and heather tones. The fabrics are all circular knitted and are 60 ins. wide. All are washable.

New Nylon Carpets

Several mills introduced new nylon carpets at the International Home Furnishings Market in Chicago last month.

Bigelow-Sanford Carpet Co., James Lees & Sons, Magee, and Alexander Smith introduced new patterned carpets of Du Pont nylon. A majority of the carpets will be priced at about $12.95 a sq. yd.

Du Pont will merchandise and advertise the new patterned carpets as "Design Takes the Floor."

There are numerous stylings, such as monochromatic colors, texture variations through twist settings, and muted lusters by blending various percentages of bright and full-dull-luster carpet nylon.

Barwick Mills introduced a high-low loop-pile tweed-textured carpet called Startime 501 of Du Pont's 501 carpet nylon. The carpet has been spaced dyed to give the effect of shimmering jewels.

Each texture has a dominant color interspersed with at least three additional colors.

Cabin Crafts introduced a level loop-and-cut construction of continuous-filament nylon in a small-scale, over-all design called Toulon.

Announcing a control program that means something to you!

THE CHEMSTRAND CORPORATION, MANUFACTURER OF ACRILAN* ACRYLIC FIBER, ANNOUNCES A LICENSING PROGRAM FOR ITS REGISTERED TRADEMARK

ACRYLIC FIBER

With consumers, retailers, cutters, convertors and millmen alike, no fiber has achieved a higher reputation than Acrilan—the acrylic fiber made by The Chemstrand Corporation. Now, to protect that reputation—and also to protect you and your customers—Chemstrand announces a licensing program that will insure that all fabrications carrying the A-Acrilan trademark, as illustrated, contain not less than a specified percentage of Acrilan.

This program provides for the licensing of this trademark as an "ingredient mark." This means that it can be used only on fabrications containing Acrilan acrylic fiber in those percentages that provide maximum utility, quality fashion and great consumer value. The percentages required will be approved by The Chemstrand Corporation.

To carry out this program the following controls will be instituted:

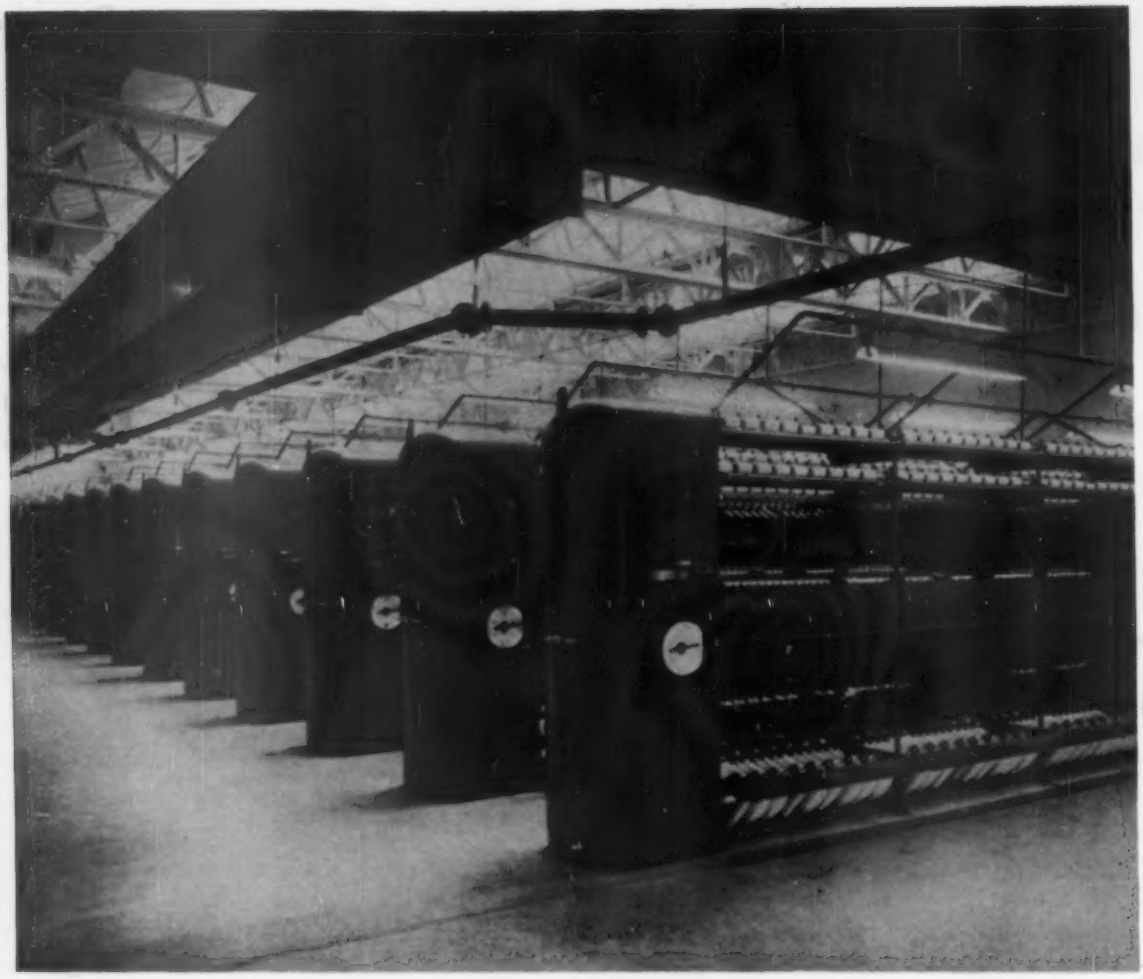
1. Mills or convertors wishing to use this trademark on a fabrication must submit samples of the finished fabrication to The Chemstrand Corporation for testing.
2. If the fabrication meets the standards of The Chemstrand Corporation, the mill or convertor will be granted permission to use, and authorize their customers to use, this trademark on that fabrication and products made therefrom as an ingredient trademark.
3. Chemstrand will from time to time purchase articles bearing this trademark and test such articles to determine whether the fabrication is a duly licensed fabrication and contains not less than the required percentage of Acrilan.

Millions of viewers see the A-Acrilan trademark on coast-to-coast network TV...millions more see it constantly in America's leading magazines and major newspapers. This control program means that the multimillion-dollar advertising that Chemstrand puts behind Acrilan will work specifically for *you!* For further information on this important new control program, write the Merchandising Dept., The Chemstrand Corporation or call OX 5-5100, Ext. 264.

Chemstrand makes only the fiber; America's finest mills and manufacturers do the rest.

*Registered trademarks of The Chemstrand Corporation for its acrylic fiber.

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES, 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES, 350 Fifth Ave. New York 1; 3½ Overwood Rd., Akron, Ohio; 197 First Ave., Needham Heights, Mass; 129 West Trade St., Charlotte, N. C.; California Office, 707 South Hill St., Los Angeles 14 Canadian Agency: Fawcett & Co., 34 High Park Blvd., Toronto, Canada • PLANTS: ACRILAN* ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND* NYLON—Pensacola, Fla.



In Europe 52 Mills have already installed more than 140.000 spindles of this equipment.

The greater part of the principal producers of stretch yarn have already adopted Ateliers Roannais de Constructions Textiles "FT" equipment. This machinery enables them in fact to obtain, at high speed, the best quality of stretch yarn now in the market.

The essential characteristics of the "FT" machinery are to work with very high precision of yarn tension, setting temperature and twist. Three advantages which procure for the manufacturer of the crimped yarn the security of selling a first grade article.

Numerous Mills have installed batteries comprising sometimes dozens of machines such as the French factory below.

The "FT" machine will be exhibited at the Atlantic City Exhibition together with the supplementary machines for assembling-twisting and coning the crimped yarn for sale ready for use.

ATELIERS ROANNAIS

DE CONSTRUCTIONS TEXTILES - ROANNE - LOIRE - FRANCE

TÉL. 45-81-82-83 ET 48-60 - CABLE : CONSTRUCTILES - TÉLEX. N° 31.986 - ARCTEX - ROANNE.

DISTRIBUTOR FOR THE U. S. A. : WHITIN MACHINE WORKS - WHITINSVILLE, MASS.

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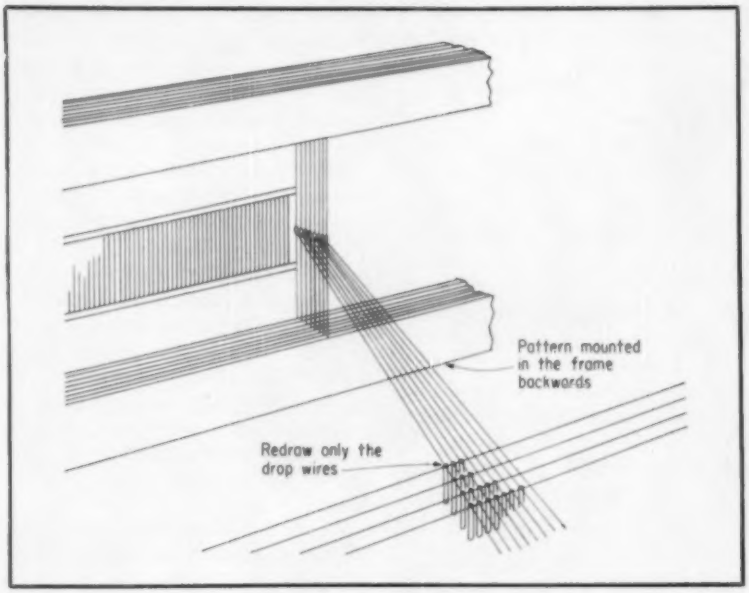
New Drop Wires Can Be Added To Save Fabric Patterns



Drop wires of a cloth pattern often become rough at the loom and need changing while the harnesses and reed are still in good condition. Usually these patterns are cut out at the loom, and the patterns are completely redrawn in the drawing-in room.

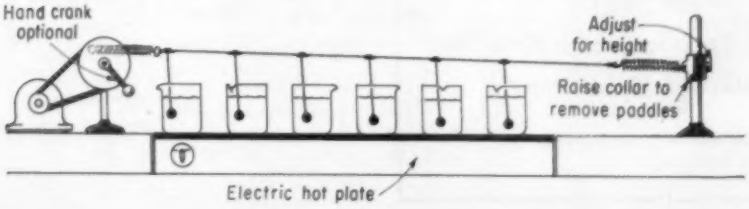
But on patterns with intricate draws or a very high number of warp ends, much time can be saved by lifting the complete pattern out of the loom. Then the pattern is taken to the drawing-in frame and mounted backwards in the frame, which can be done very easily.

The old drop wires are pulled off the warp ends and discarded. The drawing-in hand has only to redraw the drop wires, and the pattern is ready to be tied in the loom again. (K-3840) *David L. Garrett, South Boston, Va.*

Multiple Agitator Stirs Several Samples

Several laboratory dyeings can be stirred at a uniform rate at one time by means of the mechanical stirrer shown in the sketch. The unit can be hand powered or driven by a small electric motor. The springs cushion the action of the paddles.

In the latter case, the dyer is free to do other things while the samples are stirred. (K-202)



Wheel Protects Doors From Truck Damage

You can cut down maintenance expense on swinging doors by building a rotating bumper in the door face to take up the shock when power trucks hit interdepartmental doors in the mill.

Mount a plastic, plywood, or metal disk 5 to 6 ins. in diameter on an axle with suitable bearings. A rubber-tired wheel is even better.

Mount the wheel in a slot about 2 ft. from the floor and within a few inches of the door edge. When a truck is pushed against the door the wheel is hit first and it rides along the side of the truck as the door opens. (K-3977)

Tool Made From a Wood Rasp Pulls Conduit From a Rack

We keep all our electrical conduit in racks; often there are 50 to 100 pieces of conduit of many sizes in a single rack. So it's difficult to pull a selected size from the bottom of the rack without moving the top pieces of conduit.

But we have solved this problem with a tool easily made from a worn-out wood rasp. The end of the rasp pointed for a handle is heated and bent to a right angle. Then a wood handle is fastened securely to the bent end.

To remove a piece of conduit from any position in the rack, we push the rasp into the end of the conduit until it's firmly wedged with the teeth in contact with the inner surface of the conduit. By pulling the handle away from the rack, we pull the selected conduit out cleanly and easily without disturbing the other conduit.

Sometimes the inside diameter of the conduit is larger than the rasp. Then we lift the rasp upward as we pull it outward.

There's a hole in the wood handle, and the rasp is hung on a hook at the end of the rack so that it's always at hand. (K-3696)

Glass Tube Makes Versatile Lab Tool

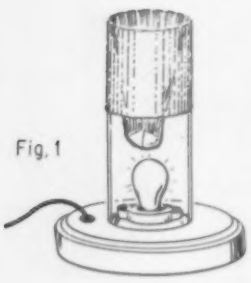


Fig. 1

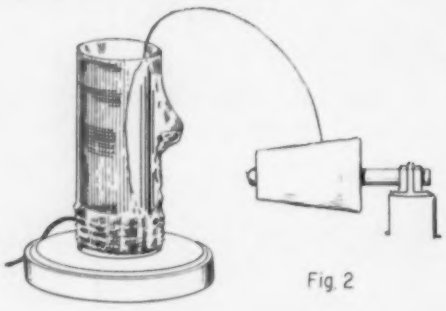


Fig. 2

We have developed a simple laboratory tool that has turned out to be extremely useful for inspecting and turning socks and counting courses. The apparatus also can be used as a sock holder for rewinding.

The tool basically consists of a 5¾x14-in. glass tube mounted on a wooden base and equipped with a 60-w. lamp as shown in the diagram.

Fig. 1 shows how a sock can be pulled down over the tube for inspection. At the same time, the bright light inside makes it easy to count courses if the need arises.

Fig. 2 shows how the tool can be used as a handy holder for rewinding by pulling the sock all the way to the bottom of the tube. For this use, the light is not needed. (K-3664)

Use Metric System for Shrinkage-Test Figures

We save a lot of time in figuring the results of shrinkage tests by measuring test samples in centimeters.

Both AATCC and ASTM methods for testing fabrics for shrinkage specify a sample 20 ins. square. If you use a metric rule and cut the samples to 50 cm. on each side, you have within ⅛ in. of a 20-in. square.

Two measurements—warp and filling—add up to 100 cm. Therefore when the dimensions change after laundering, there is no need to divide the laundered length by the original length to obtain percent shrinkage. Mental survey is a perfectly adequate means of getting the results.

If you use 25-cm. squares, two measurements each way on both pieces also give you the base figure of 100. For a single 25-cm. square, you simply double the sum of the shrinkage to convert to percentage.

Meter sticks and metric rules are obtainable from laboratory supply houses. A template that measures 50 cm. on each side provides the quickest way to lay out samples in easily figured metric measurements. (K-183) *Maybelle McBee, Billerica, Mass.*

Tool Made From Vibrator Removes Loom Connectors

Our looms have Knowles head motions, and we've always had trouble in removing vibrator connectors from jacks without springing the connector out of shape so that it is ruined or breaking the jack boss.

But we've made a tool with both push and pull action to disconnect the connectors without injuring either the jacks or connectors.

For the body of the tool we use a vibrator lever (Catalog No. 18626).

We grind off the gear stop flush with the lever as shown at *A* in Fig. 1 below. Then we grind off the end of the lever that contacts the lock-knife blade to $\frac{7}{64}$-in. over-all thickness at *B* so that it will pass through the evener comb freely. The rivets at *C* are ground off, and the lug is removed.

We also cut the heel-pin hook off the vibrator at *D* and grind this section of the lever off smooth for a handle.

We cut a piece of tool steel ⅛x1x5 ins. and taper the 1-in. width from 1 in. to ⅝ in. We bend the narrow end of the steel to form a hook ⅛ in. wide and $\frac{5}{16}$ in. in height so that it fits a regular vibrator connector. We file the $\frac{5}{16}$-in.-high surface down to $\frac{1}{16}$-in. thickness so that in use it will pass between the connectors in the head easily.

The wide end of the hook is ground to an arc as in the sketch. An $\frac{11}{64}$-in.-dia. hole is bored in this end of the hook 1¼ ins. from the end. This section of hook is riveted to the vibrator lever with the hook side under the lever, as shown in Fig. 2.

The finished tool slips easily through the head to lift off any vibrator connector desired easily and quickly. Therefore loom-parts cost has been reduced. (K-159) *Edgar W. Scaife, Montoursville, Pa.*

Fig. 1

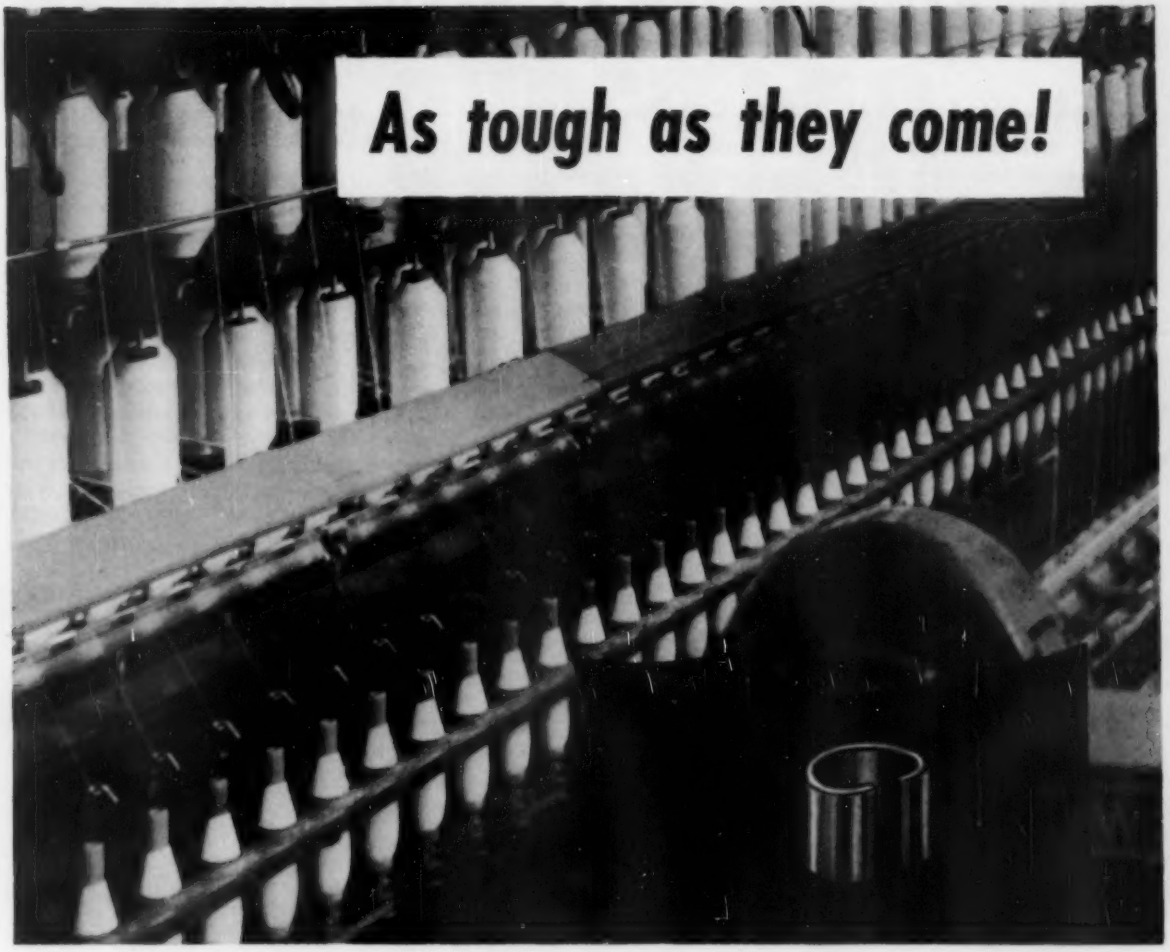
Fig. 2

$25 KINK WINNER

The $25 prize for the best Kink in December was won by:

Gerard Mailloux, Magog, P. Q, Canada, for his Kink "Mill Finds Many Uses for Discarded 12-in. Cans."

WATCH FOR NEXT MONTH'S WINNER



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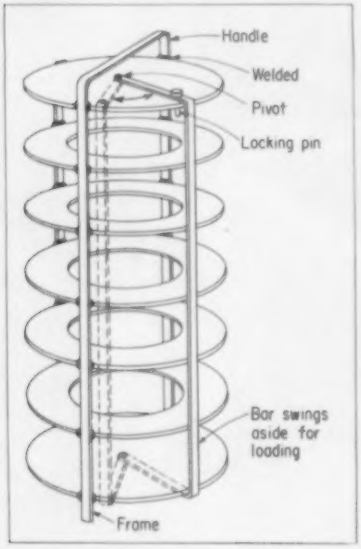
CIRCLE 123 ON READER SERVICE CARD 123

Sliver Carrier Speeds Up Sample Collection for Lab

We used to transport sample coils of sliver on a tin disk to the laboratory for testing. The laboratory is a considerable distance from the card room, and the sample collector could carry only two samples per trip. Often these samples were disturbed in transit, which made testing difficult.



We made a sliver-carrying rack from thin metal disks and supporting bars as shown in the diagram. The carrier has space for six samples, which are protected on four sides by upright bars. The front bar is attached to the top and bottom of the outside disks with a pivot so that the bar can be swung to one side while the rack is being loaded. After loading, the bar is swung and locked in place with a pin.

The samples are placed on disks in the usual manner and slipped into each compartment of the carrying rack. The center of each shelf is cut out to make the carrier lighter.

The carrier makes it possible for the sample collector to carry three times as many samples as before and assures their arrival in good condition. (K-154)

Snap-Action Switches Control Elevator Doors

To prevent operating our freight elevators until all doors on all floors are closed, we installed a snap-action switch on each floor for each elevator.

The switches for an elevator are wired in series with the elevator motor and are actuated by the doors.

If an object protrudes through a door opening, the circuit to the elevator motor remains open and the elevator cannot move. Therefore this setup prevents injury to elevator operators and other employees or damage to the elevator itself. (K-223)

William Viel in Micro T'ps

Wire Tool Cleans Dirty File So It Can Be Used Again

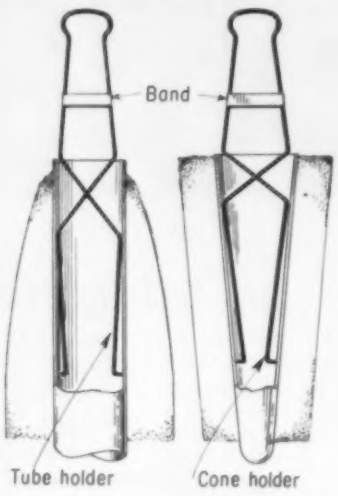
In trying to reduce costs in our mill machine shop, we found that we were using too many files; many files were thrown away because they were gummed up with oily metal and wood.

We now keep these files clean and use them until they are actually worn out. To clean them, we make a cleaning tool from a piece of No. 6 copper wire 9 ins. long.

One end of the wire is looped to form a handle; the other end is flattened on an anvil. We pushed the flattened end of the wire across the toothed surface of a new file several times to cut grooves in the wire.

The grooves of the wire are pushed back and forth across the teeth of a gummed-up file to clean them thoroughly. Now we use all our files until they're really worn out. (K3781)

Spring Wire Is Used To Make Package Holders



While it is not often that a cone or tube needs to be held upside down during knitting, the occasion sometimes arises. The practice is quite common during other operations. The job of holding the cone upside down and in proper position used to give us a lot of trouble.

We made the job easier by improvising holders that slip inside the package and hold it firmly in place. The holders are made from spring-steel wire bent in the shapes shown. Pressure is regulated by slipping a steel band up and down the handle portion of the wire. (K-3405)

Colored Disks Keep Warp Patterns Straight

We used to have trouble in warping shadow stripes when we were using three or four shades with close colors. Now and then the wrong color would be creeled and cause the pattern to be spoiled.

We stopped this mixing of colors by making some disks of light metal and placing them over the cone holders in the creel. The disks are painted white, blue, red, and yellow for identification purposes.

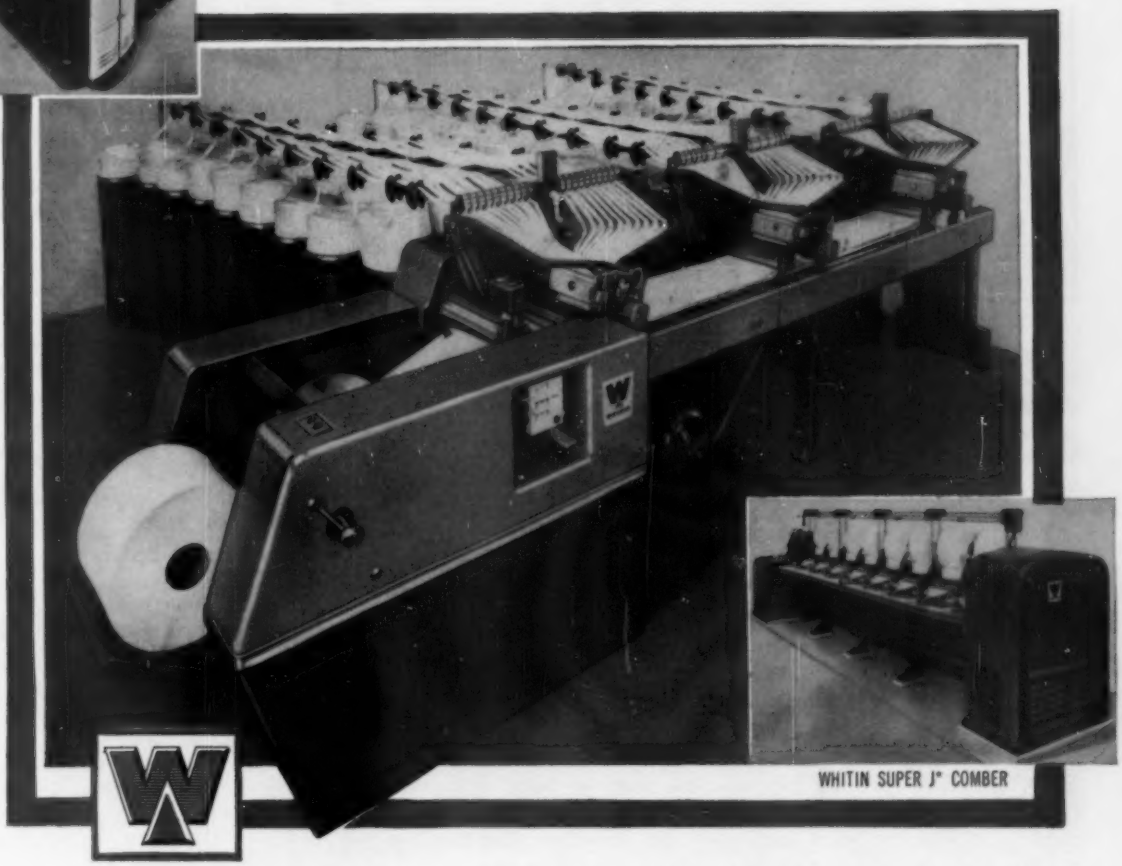
Shadow-stripe patterns now are put in the creel first, in accordance with the identifying disk. When the warp pattern is complete, it is easy to put in the ground yarns.

The use of this system of color identification has completely eliminated wrong patterns and mixed yarn at our mill. (K-3904) *A. Spivey, Leach Textiles Ltd., Huntingdon, Que.*

The WHITIN SUPER J's New Running Mate-

the SUPER LAP machine

WHITIN
EVEN-DRAFT* DRAWING FRAME



WHITIN SUPER J* COMBER

The new Whitin Super Lap machine heralds a major advance in cotton processing. Running-mate to the famous Super J Comber, the Super Lap and the new Whitin Super Lap Preparation Method* hold promise of material savings in the making of combed yarns thru improving yarn quality, increasing Comber production and reducing Comber waste.

The Super Lap was specifically designed by Whitin Research engineers to implement a new concept in preparing Comber laps — the Whitin Super Lap Preparation Method — in which card sliver is first processed on the Even-Draft Drawing and then formed into laps by the Super Lap. This sequence of operations results in the superior lap in which all hooked and bent fibers have been straightened and made parallel — then on to the Super J Comber.

*(Pat. applied for)

Through this new method Whitin offers you these competitive advantages:

- **Lap production 500 lbs./hr. — 35 lb. laps from 60-end can feed.**
- **Up to 3% reduction in noils.**
- **Lap weights up to 1000 gr./yd. permit increased Comber production. (20-25%).**
- **Straightened and parallel fibers in lap afford easier combing.**
- **Recommended total draft 24-32.**
- **Improved yarn quality.**

For complete information see Whitin representative or write us direct.

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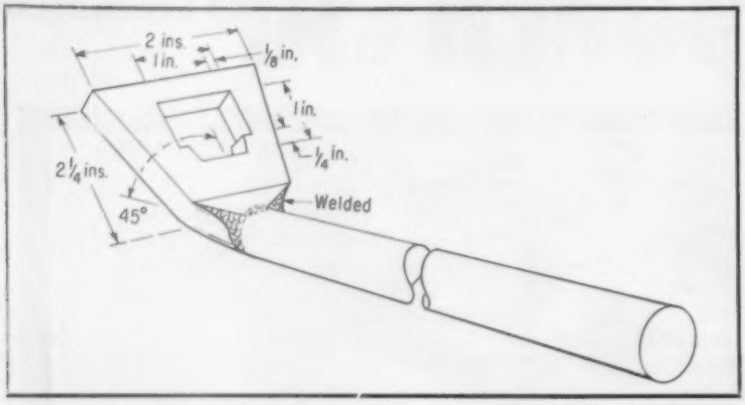
CIRCLE 125 ON READER SERVICE CARD 125

Tool for Loom Magazine Bends Hammer to Any Angle



We've used a lot of transfer-hammer benders on our looms but none works as well as the one shown in the accompanying sketch. It moves the hammer either up or down and backward and forward without damage to the transfer hammer.

The handle for the tool is made of ¾-in. steel rod 10 ins. long. The tool head is made of steel stock.

The head is machined to the specifications shown in the sketch. Then it is welded to the handle.

The shoulder of the tool that extends 1⅛ ins. does much to help the tool move the transfer hammer in any direction.

The tool is stored at the weaveroom foreman's desk so that any loomfixer in the weave room can use it when he needs it. (K-160) *George Gurley, Reedsburg, Wis.*

Guide Controls Harnesses To Prevent Fabric Defects

On our older dobby-equipped looms, harnesses often oscillate excessively. This out-of-plumb movement is caused by worn harness sheaves, dobby out of alignment, floor block for harness springs too far to the front or back, and other bad settings.

But sometimes harnesses oscillate for no apparent cause.

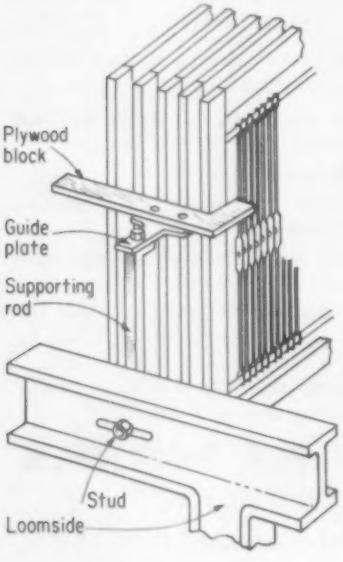
The results of excessive oscillation are frayed and broken warp ends, cloth defects in general, and harnesses damaged by the loom lay.

We recently made wooden guides for our looms that control this oscillation. A cast-iron supporting rod as shown in the accompanying sketch is fastened to the loomside with an adjustable stud.

A plywood block is cut to fit on a cast-iron slotted plate that's fastened to the supporting rod with a capscrew.

The stud in the loomside is moved forward or backward as needed to keep harnesses plumb. The plate at the top is moved in or out to control movement endways.

Because the surface that contacts the harness frames is wood, there's little wear. (K-4035) *Hokao, Fukaya, Fukui-ken, Japan*



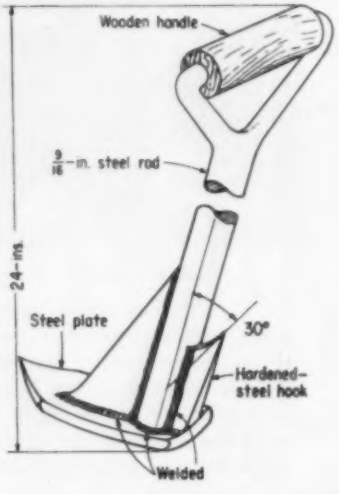
Correct Crossed Lead Wires To Stop Flickering Lamps

If one tube in a fluorescent-lamp fixture burns dim and the other one flickers, chances are your sockets aren't wired correctly from the ballasts. One wire from the ballast to the socket is usually one color and the other is a second color; white and red wires are a common color combination.

But if these wires are crossed on one end of the tube, the tubes are dim and they flicker.

If you have these crossed conditions, you can correct them more easily by changing the sockets on each end of the light instead of taking the wires off the sockets. This method saves time. (K-3303)

Mill-Made Hook Opens Bales Easily



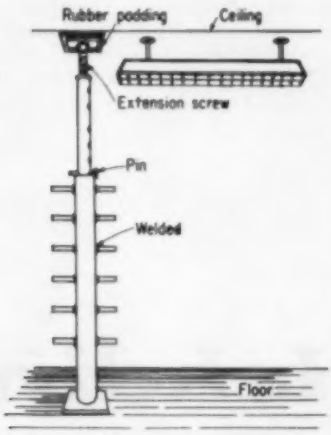
At our plant we used to use an axe to cut the straps on cotton bales. With the rugged tool shown, we've cut down the labor involved and are able to salvage the straps for reuse.

As shown in the drawing, the steel handle has a hardened-steel hook welded to it and a base plate that distributes the pressures involved when the tool is in use.

To open a bale, the hook is inserted at the join in the bale strap; and when the handle is pulled back, the leverage cuts the strap easily. (K-184)

Jack Post Makes Good Ladder for Overhead Maintenance

We have an integrated mill complete with yarn manufacturing through knitted fabrics. Because our mill is an old one, many of our machines are spaced very close together. As a result, it's difficult to get a stepladder in the machine aisles to maintain fluorescent lamps and to clean overhead areas.



But we've solved this problem by using an extension post (jack post) with a screw head that's commonly used as an extra brace between floors and ceilings.

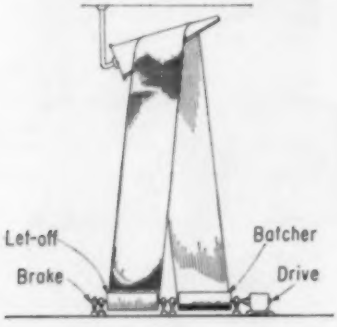
To one side of the bottom section of the post, we welded several iron water pipes for steps. On top of the extension-screw cap, we use a rubber pad to keep from marring our ceiling.

This substitute stepladder is fairly light and can be placed at the front and back of all production machines. At many machines, it will go between the ends of machines.

But for safety, we have to be sure the jack post is well braced between the floor and ceiling. Then it can't slip if it's upright and tight. (K-3357)

Conical Guide Roll Simplifies Double Inspection

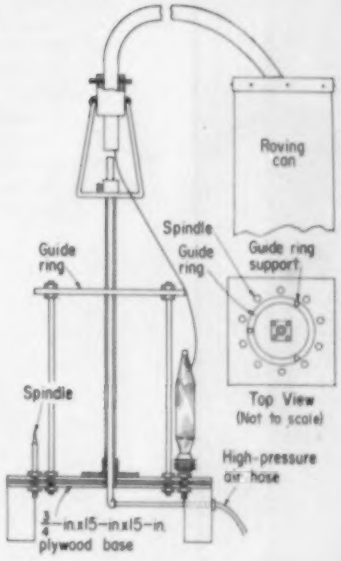
We rigged a conical roll on an open-end mount to speed up inspection of both sides of finished goods as shown in the illustration.



The batcher is power-driven, and the let-off is provided with a brake to supply moderate tension to the goods as they pass over the roll. The conical guide roll is mounted on a bracket that is bolted into the ceiling.

If you make one, be sure that the batcher is arranged to pull the goods off the high side and small end of the cone. The taper and angle of mount will depend on cloth width and can be determined experimentally for each application. (K-220)

Air Stripper Cleans Quills Without Damage



We formerly cut waste yarn off quills with a knife. Frequently the knife cut through the yarn and into the quill, which scarred the barrel and made the quill unfit for further use.

We eliminated scarred quills by building a bobbin stripper as shown in the illustration. The stripper, made largely from scrap flat iron and pipe, is about 40 ins. high. The stripping action results from high-pressure air blown up through a ¼-in. pipe and into a 1-in. collector pipe that carries the yarn into a roving can.

The stripper will clean a bobbin in seconds, and there is no longer any danger of cutting the quills when the yarn is removed. (K-187) *John H. McGowan, Spartanburg, S. C.*

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You can send in as many Kinks as you want to in any month.

All Kinks are paid for on acceptance.

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Let us know if you don't want your name published.

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Send Kinks to:
Kinks Contest, TEXTILE WORLD
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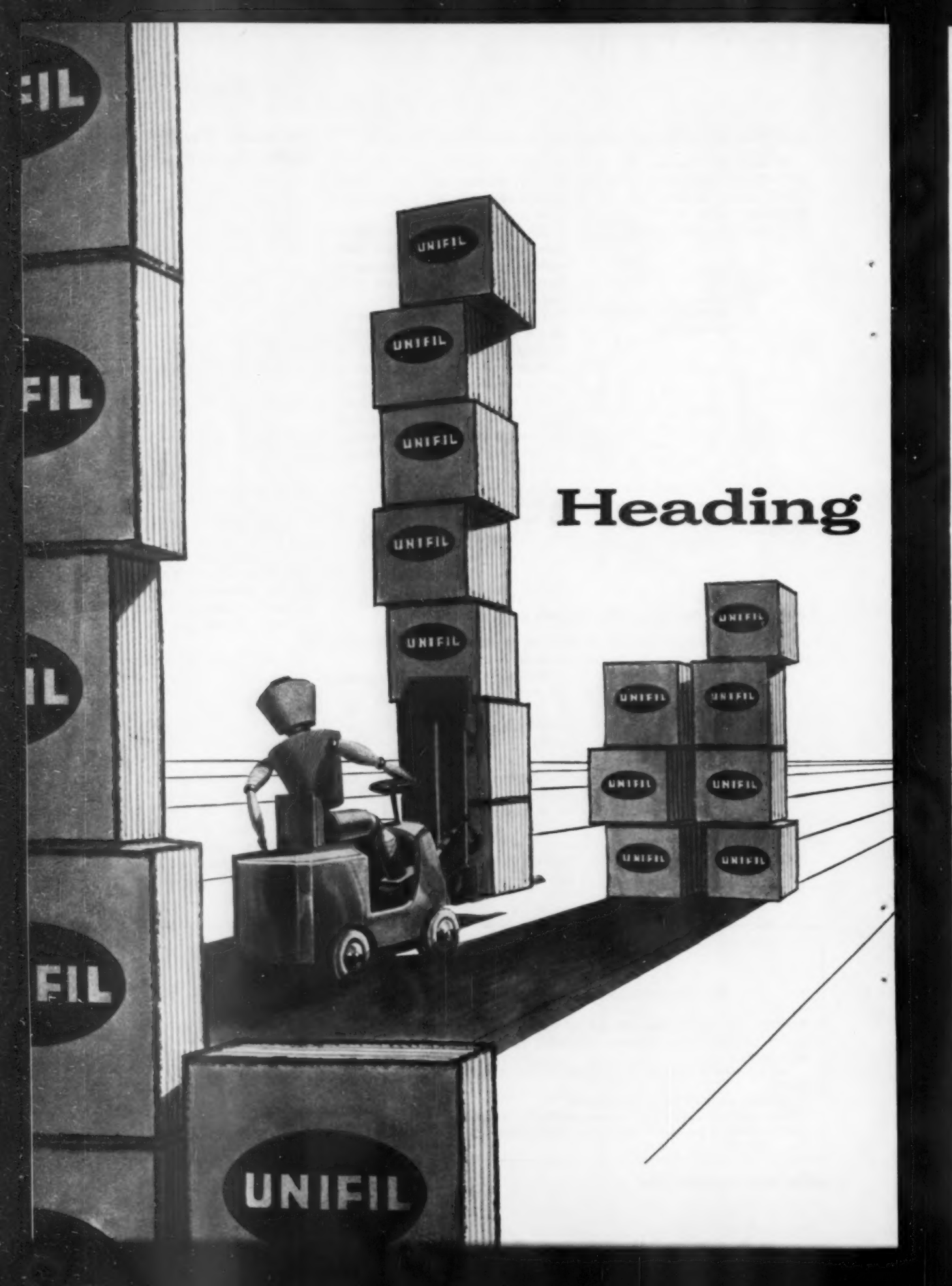
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Imaginative weavers everywhere are utilizing the outstanding performance which only UNIFIL® Loom Winders provide. Using this advanced, highly versatile method of filling yarn preparation, they're creating excitingly new fabrics . . . opening brand-new markets. With cotton . . . synthetics . . . textured yarns they're producing an infinite variety of hand, patterns, and surface effects with a uniformity never before achieved.

In many of these progressive mills, a Leesona Sales Engineer showed the way. By carefully evaluating *existing* methods and machinery for filling yarn preparation, he indicated how installation of UNIFIL Loom Winders would make possible *better* diversification and economy in production. And, in most cases, his estimates proved *conservative* when UNIFIL Loom Winders actually began producing. Naturally mills reordered fast!

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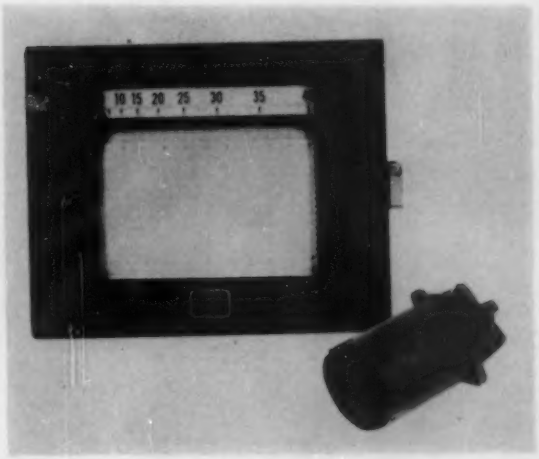
Low-Range Pyrometer

Radiation-temperature measurements from O° F. are possible with an instrument marketed by the Bristol Co., Waterbury 20, Conn.

Called the Bristol Velotron Low-Range Pyrometer System, the unit is especially applicable to measuring, recording, or controlling temperatures commonly encountered in textile processing.

The range of the instrument is O to 200° F. and on up to 1,100° F. An optical pyrometer is used to pick up radiant heat from material being processed and concentrates the heat on a thermocouple. The electric current generated by the action of the heat on the thermocouple can be used to actuate a Bristol Dynamaster unit that in turn can be set to indicate, record, or control process as desired. **(Circle T-1 on Reader-Service card)**



Large-Package Winder

A winder that produces a coreless package up to 30 ins. long and weighing 9 lbs. has been introduced in the United States by Interstate Textile Equipment Co., 508 W. 5th St., Charlotte 1, N. C. The machine, called Rocket Winder, was developed and is produced by D. Delerue & Co., Roubaix, France.

The machine can be used to wind almost any yarn number and any type of fiber. The large packages can be used for dyeing, circular knitting, flat knitting, shuttleless weaving, warping, and bobbin and cop winding.

Among the major advantages of the large packages are even dye penetration, elimination of ribbon effects, and increased production (up to 60%) on the same dyeing equipment. It is not necessary to rewind the yarn after dyeing because the same package can be used in subsequent operations.

The winder is manufactured in six-spindle units and is available with a variety of attachments for producing different kinds of packages. **(Circle T-2 on Reader-Service Card)**

Plastic Tag Protector

Ordinary paper tags may be used in a plastic container to mark indoor or outdoor transformers, terminals, disconnect switches, etc. The clear plastic protects a tag from the weather and from oils, greases, and other soils.

The container is made by Redford Products, Inc., P. O. Box 36, Roanoke Va., and comes in three sizes: 5 x 3 ins., 3⅜ x 6¼ ins., and 4 x 7½ ins. **(Circle T-4 on Reader-Service Card)**

Rayon-Loom Parallel Motion

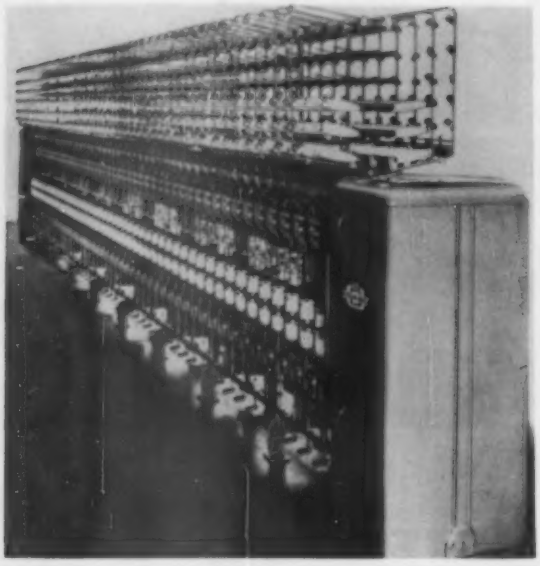
A parallel motion for its Model 382 silk and rayon loom has been introduced by George Hattersley & Sons Ltd., North Brook Works, Keighley, Yorkshire, England.

The parallel has a swinging link in conjunction with a floating hinge at the bottom of the picker stick. An eccentric bushing forms the hinge's axis and enables accurate adjustments to be made to parallel the picker.

With this parallel motion, the manufacturer says the arc formed by the picker movement at conventional parallel motions is eliminated.

Other advantages claimed are: positive control of the picker, accurate shuttle flight to eliminate shuttle marks in fabric, reduction in picker-stick power, quiet operation, and ease of adjustment. As a result, loom speed is higher and less loomfixer attention is required. **(Circle T-3 on Reader-Service Card)**

Large-Package Doubler



A ring doubler for medium yarn numbers that produces a 2½-lb. package has been announced by Sydney and E. Scragg Ltd., Macclesfield, Cheshire, England.

Ring sizes range from 3½ to 5 ins., and the lift is 9 ins. Operational speed is 7,500 rpm. Spindles and gearing are driven by an endless belt that runs around the machine. Chain-driven from the gearing, the lifter motion employs a new-type double cam that permits the production of three types of packages.

Packages can be tapered at one end or both ends, or double-flanged bobbins can be wound. Speed of the ring rail can be varied; balloon guides are driven from an auxiliary traverse rail.

Other features include heavy-duty spindles with anti-vibration mountings, twin-feed rolls, traveling balloon guides, and a multipurpose builder motion. **(Circle T-5 on Reader-Service Card)**

Polyethylene Tape

Electrical tape made from polyethylene is being sold by Dayton Rubber Co., 2342 W. Riverview Ave., Dayton, Ohio. The tape stays flexible in cold weather and resists abrasion and corrosion. Dielectric strength of the tape is over 10,000 v. The tape replaces friction-rubber combinations, and it resists chemicals, solvents, fungi, and bacteria. Textile uses include oily conditions at loom stop motions. **(Circle T-6 on Reader-Service Card)**

Flame-Retardant Trucks

A line of flame-retardant Kennett materials-handling receptacles has been developed by National Vulcanized Fibre Co., 1059 Beech St., Wilmington 99, Del. The units are made of Pyronil, a flame-retardant grade of vulcanized fibre.

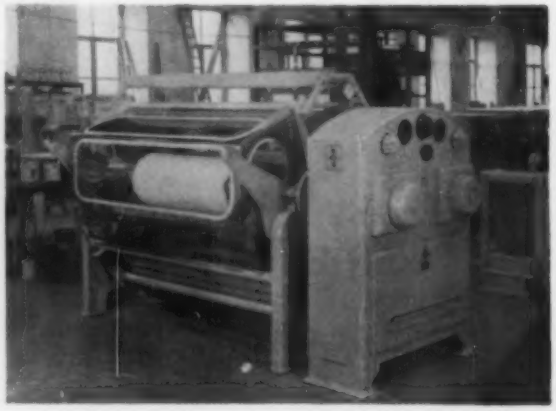
Pyronil is a hard, smooth, cellulose-plastic material and is available as trays, pans, bins, boxes, floor trucks, baskets, and containers. In addition to being flame retardant, these containers are lightweight and strong for hard service. **(Circle T-7 on Reader-Service Card)**

Automatic Jig

Completely automatic control of speed, tension, and number of ends run is offered in a dye jig marketed by F. Smith & Co. (Whitworth) Ltd., Rochdale, Lancashire, England.

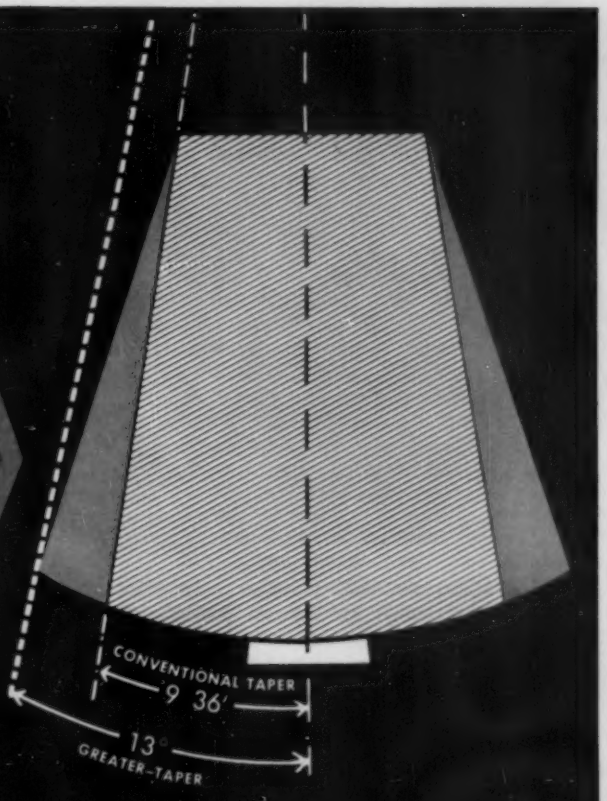
In the DC24 Autojig, as it is called, each beam is driven by a separate variable-speed motor. One motor is used to pull the goods through the dyebath while the other motor acts as a brake. Voltage applied to the braking motor is infinitely variable, which permits very close control of tension.

The jig will operate at up to 108 yds. per min. for dyeing, and faster for washing and batching purposes. The machine reverses automatically and can be preset to run any wanted number of ends. **(Circle T-8 on Reader-Service Card)**



THE FOSTER *GREATER-TAPER* CONE . . .

Why Knitters Need It



If you sell spun knitting yarns, or if you are a knitter and do your own winding, you *need* the Foster Greater-Taper Cone, produced on the Foster Model 102.

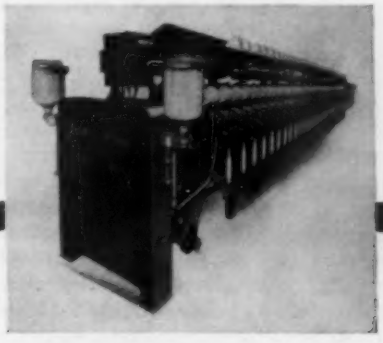
This is because Foster Greater-Taper Cone delivers freely with minimum drag at the knitting machine and thus prevents tight loops and even at times prevents breaks.

It's all a matter of clearance of yarn when the cone is full. Note in the illustration that the yarn does *not* clear the nose of a conventional 9°36' cone, but that it *does* clear the nose of the Foster Greater-Taper Cone, with room to spare, because the latter has a 13° taper, when full.

If you spin sale yarn, wind it on the Foster Model 102 and be prepared to supply the cone that knitters *need*.

If you buy yarn on cones ready for the knitting machine, insist that the cones be Foster Greater-Taper Cones and thus protect the quality of your fabrics.

THE FOSTER MODEL 102 WITH YARN CONDITIONING ATTACHMENT



ATMA
American Textile Machinery Exhibition - International
Parade of Progress

553-9

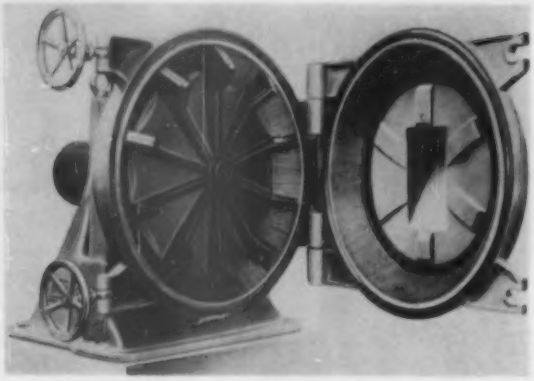
FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

SOUTHERN OFFICE — Johnston Bldg., Charlotte, N. C. • **CANADIAN REPRESENTATIVE** — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. • **EUROPEAN REPRESENTATIVE** — Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-under-Lyne, Lancashire, England.

Polyethylene Pulverizer



A machine that will pulverize polyethylene pellets has been marketed by Pallman Pulverizer Co., 315 Newark St., Hoboken, N. J.

The double rotating mill, Model PP6, will reduce polyethylene pellets to 0.3 mm. particle size. The product is used to laminate fabrics by dusting on the powder and passing the goods through an oven, which melts the polyethylene to form an adhesive binder. The machine may be purchased, or polyethylene can be ground on contract with the Pallman Pulverizer Co. **(Circle T-9 on Reader-Service Card)**

Continuous Decatizer

A continuous decatizer, sold by Tessiltecnica, 40 Via Bolognese, Firenze, Italy, is designed especially to handle circular-knitted fabrics.

Goods made from cotton, wool, or blends of various yarns can be steamed, stretched, calendered, and cooled in one operation on the machine. Accurate control of steam, suction, and speed permits reproducible results from lot to lot. **(Circle T-11 on Reader-Service Card)**

Carding Cleaner

An SRRL carding cleaner that replaces the last beater in standard one-process pickers has been announced by Southern Utilization Research and Development Div., USDA, New Orleans, La. The new unit is said to increase over-all picker-cleaning efficiency 400% by reducing lint loss and increasing trash removal.

In pilot tests, the cleaner has removed one-half of the trash remaining in the cotton after opening and cleaning. Lint loss is reduced to about one-third of that resulting from the use of standard pickers.

Reduction in lint loss is brought about by a lint-recovery system in the trash box that sucks free lint into a tube and puts it back into the processing line.

Laps are said to have a more even texture and are better felted than those made on standard pickers. **(Circle T-10 on Reader-Service Card)**

Conveyor-Routing System

A conveyor-routing system that automatically directs boxes, cardboard cartons, and other containers to selected stations on a conveyor line has been announced by Atronics Products, Inc., 1 Bala Ave., Bala-Cynwyd, Pa. The system can be used to direct containers to packing stations for broken-lot-order assembly or to direct work through various processing stations.

Extreme flexibility permits either single containers or trains of containers to be handled. It is specially designed so that the container can be diverted at any station, processed, placed back on the conveyor, and diverted again at another station for further processing.

The routing system is controlled by a dispatch operator at a control console. He selects the routes by depressing station keys, and the coded instructions are automatically placed on the container by an inking printer. Code-reading carton selectors accurately control the direction of flow. **(Circle T-12 on Reader-Service Card)**

DRAPER BRIEFS
NEWS OF INTEREST IN WEAVING

RETARDING LOOM OBSOLESCENCE

A steady flow of new Improved Repair Parts keeps mill weaving machinery up-to-date

Draper Corporation is continually improving parts and mechanisms for its looms. Year after year, scarcely a week passes without the introduction of another Improved Repair Part for one or more Draper loom models. These are all designed by Draper research and engineering staffs to keep present mill machinery competitive with our newest looms.

Each Draper Improved Repair Part is made for application to as many mill loom conditions as possible. Although they may be copied by others, the original design of these parts can be successfully accomplished only by the loom builder, for he alone has complete information on the various loom constructions in the field.

These Improved Repair Parts help to keep older looms operating profitably. They postpone the day when a mill must consider its looms to be obsolete.

What is an Improved Repair Part?

An Improved Repair Part is one so developed by Draper engineers that it can be applied, as far as possible, to all existing Draper looms in the mills. It is designed to give one or more of the following benefits:

1. Better service throughout a longer life than the original loom part
2. Easier installation with less down time
3. Better loom operation
4. Production of higher quality fabrics

How Improved Repair Parts are developed

Ideas for Improved Repair Parts originate from Draper engineering and manufacturing departments, Construction Committee members, Draper sales and service men, recommendations of material suppliers and, frequently, from suggestions by mill superintendents, overseers, and loom fixers.

Usually extensive "mill trials" are conducted, whereby a new part proves itself in actual weaveroom operation, before it is offered for sale.

Although Improved Repair Parts are designed to replace older parts, mills often use both old parts and new Improved Repair Parts simply because supply room bins and records are set up for ordering both. Generally the older number could be eliminated to advantage.

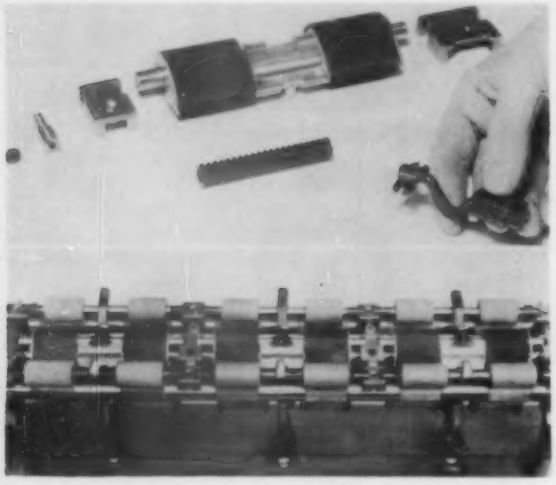
Why Draper Parts are best for Draper looms

Uniformity of parts is necessary for successful standardization in setting loom mechanisms to gauge. Worn or poorly fitting parts just cannot be set to gauge. Competitive mills know that only with the best loom parts available can they get uniform and accurate settings, that *only with gauged settings can they get maximum production, lowest weaving costs and highest cloth quality.* These mills are first putting their looms in top condition and then running them with correct and standardized settings.

In such a planned program, differences in initial cost of repair parts are often found to be of least importance. More and more mills are using Draper parts *exclusively* to maintain their weaving machinery at highest competitive standards. Draper parts are made from the same metal mixes as original parts furnished with the loom. They are finished to master overall gauge dimensions available only to the loom manufacturer. Draper Improved Repair Parts fit Draper looms and each other better; as a result, they are dependable and last longer. Correct engineering design, selection of proper materials and use of economical manufacturing methods are determined for each Draper part by a competent knowledge of their effect upon *total loom operation.*

You can find out more about Improved Repair Parts from your Draper Improved Repair Parts Catalog, from Draper sales and service representatives, or by writing to Draper Corporation.

Spinning Change-Over



A spinning change-over for converting Shaw single-apron to double-apron drafting has been announced by Dixon Corp., Bristol, R. I. Equipment consists of the seven parts shown in the upper portion of the illustration.

The heart of the change-over is the middle-top-roll apron-and-cage assembly that requires no lubrication and is positioned by cap bars retaining the stationary end gudgeons of the roll and a central metal leg that rests on the apron bar.

An oil-less back saddle with Rulon bearings delivers pressure to the back top roll, middle top roll, and cage. Increased spring pressure can be applied through an additional coil spring inserted in the existing container. Weights up to 70 lbs. can be applied to the three top rolls. **(Circle T-13 on Reader-Service Card)**

Variable-Speed Transmission

A 1½-hp. hydraulic transmission developed by Roberts Mfg. Co., 849 W. Grand Ave., Chicago 22, Ill., gives infinitely variable speed from 0 to 350 rpm. in either direction. Forward and reverse speeds can be set identically or differently, as preferred. Speed control is smooth, precise, and constant.

Other features include instantaneous reversing, neutral (0 rpm.) position, and integral-torque multiplier for high-torque applications. The compact completely self-contained package unit has a 6-qt.-capacity oil reservoir and an electric motor.

Output-shaft diameter is 1 in. with a standard keyway. The motor is available in either single- or three-phase 60 cycles and has ball bearings and roller bearings throughout. **(Circle T-16 on Reader-Service Card)**

Ratchet Pipe Threader

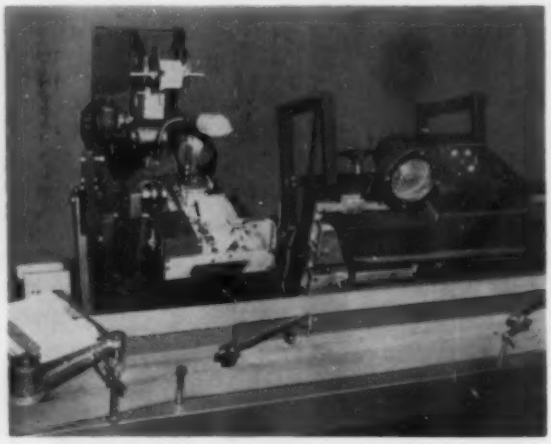
A jamproof ratchet pipe threader with a foolproof true-centering workholder is being manufactured by Ridge Tool Co., 400 Clark St., Elyria, Ohio. A flip of a lever tightens all three jaws together to cut straight threads even on oversize or undersize pipe.

Adjustment for drip threads is easy. The tool threads 1- to 2-in. pipes with one set of dies, and it can be set to the correct-size die in only 8 secs. The threader kicks out automatically when a standard-length thread is cut; therefore it does not have to be watched. **(Circle T-14 on Reader-Service Card)**

Air or Hydraulic Cylinder

A series of Powrmation low-pressure-air and hydraulic cylinders has been announced by Hanna Engineering Works, 1765 Elston Ave., Chicago 22, Ill. These cylinders are offered in 1½- through 8-in. bores. Capacities are 250-psi. air, and 400- to 1,000-psi. hydraulic.

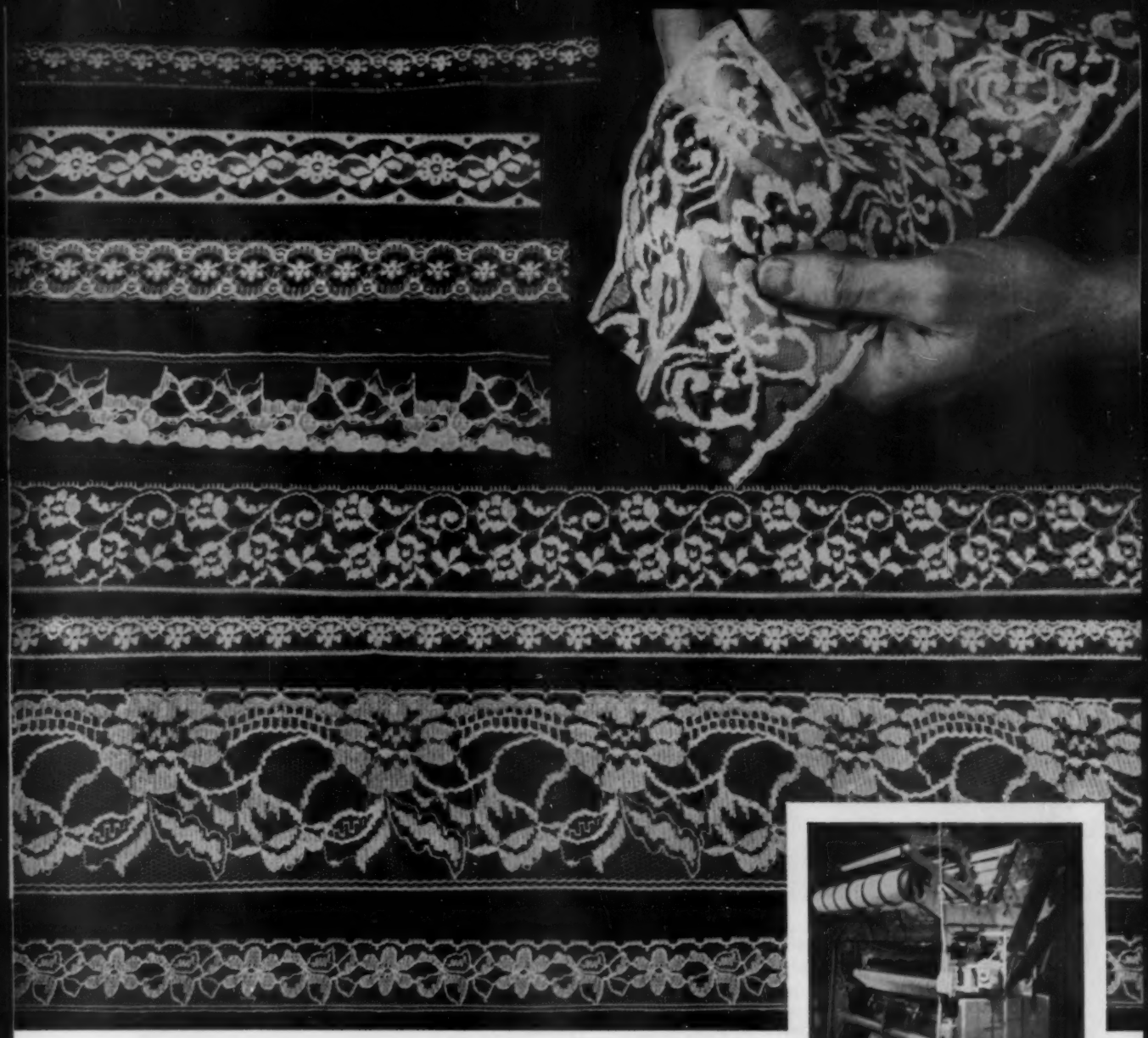
A wide variety of mountings, rod diameters, and rod ends makes the cylinders adaptable to practically all installations. Optional accessories give the cylinders great flexibility. **(Circle T-15 on Reader-Service Card)**



Labeling Machine

An automatic label applicator that attaches pressure-sensitive labels to conveyor-carried polyethylene packages is being marketed by Amsco Packaging Machinery, Inc., 31-31 48th Ave., Long Island City, N. Y.

The unit is an auxiliary to the Amscomatic packaging method. Named the Amscomatic 300 label applicator, the machine accepts the package and automatically applies a perforated-edge pressure-sensitized label at a rate of 144 per min. Labels can range in size from $\frac{11}{16}$ in. to 1½ ins. long and 1 to 4 ins. wide. **(Circle T-17 on Reader-Service Card)**



There's no limit to the lace patterns with the NEW KIDDE 24 BAR RASCHEL KNITTER

Look at the lace in the picture. Every one of those intricate and varied patterns can be made on a single machine . . . Kidde's new 24 bar knitter. Look again at the quality of the lace . . . at the fine detail and the clear outlining of the pattern. That's quality lace turned out at moderate cost.

This new addition to Kidde's line of Raschel knitters is built to operate with 24 bars . . . but can be used with 14 or 18 for less intricate patterns. It turns the lace out fast, too . . . up to 300 courses per minute.

Like all Kidde machines, the new 24 bar knitter is simple, accessible and easy to work on. Equally important, it is ruggedly built to withstand round-the-clock, high speed operation. Write to Kidde for full information.

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde

TEXTILE MACHINERY CORPORATION — BLOOMFIELD, NEW JERSEY

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

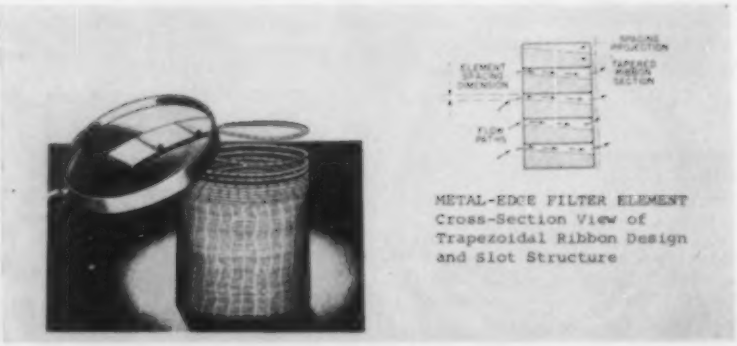
CIRCLE 137 ON READER SERVICE CARD

Corrosive-Liquid Filter

A corrosive-liquid filter announced by Purolator Products, Inc., Rahway, N. J., uses a ribbon of Type-304 stainless steel for the filtering element.

Acids or alkalis will not attack the filter. Spacing of the ribbons of stainless steel is controlled to 0.02 ± 0.0005 in. in the 500-micron filters.

The filter will operate under high pressure and can be reverse-flushed for cleaning. **(Circle T-18 on Reader-Service Card)**



METAL-EDGE FILTER ELEMENT
Cross-Section View of
Trapezoidal Ribbon Design
and Slot Structure

Multispeed Recorder Drive

A multispeed chart drive that can be mounted on any standard Bristol Dynamaster strip-chart recorder has been announced by Insco Co., Div. of Barry Controls, Inc., Hollis St., Groton, Mass. The unit allows instant dialing of any of six different chart speeds without stopping the chart.

It can be easily mounted in the field directly on change-gear hubs without modifying the recorder. The unit eliminates the difficult and time-consuming operation of changing gears, and it provides greater versatility of speeds to match varying recording requirements.

Substantial saving of chart-paper costs is achieved by dialing a slow speed for monitoring and then quickly changing to a fast speed.

Two standard models of the chart drive are available with over-all ratios of 16 to 1 and 32 to 1. The speed changer is only 2⅛ ins. in diameter. **(Circle T-19 on Reader-Service Card)**

Thread Lubricator

Sewing threads are supplied with a silicone-based lubricant by a lubricator announced by The Distributor's Group, Inc., 204 14th St., N. W., Atlanta 13, Ga.

High-speed sewing-machine needles and adjacent parts are coated with a stainless, heat-resistant glaze as the treated threads pass through the sewing machine. The unit is marketed as the FilMagic Lubri-Pack. **(Circle T-20 on Reader-Service Card)**

Chemical Tubing

Large-diameter thin-wall Teflon tubing for chemical and electrical applications is available from Polymer Corp. of Pennsylvania, Alton Rd., Reading, Pa. Standard sizes begin at ⅛ in. and go through 1 in.; wall thicknesses are 0.005 to 0.008 in.

Lengths through ½-in.-dia. are 18 to 24 ins.; length over ½-in.-dia. are 8 ft. Longer lengths are provided by special order. Standard colors are brown, red, green, blue, orange, yellow, gray, and violet.

For chemical applications, the tubing is heat resistant, will not stick, and is odorless, tasteless, and noncorrosive. For electrical applications, it is used for sleeving insulation; it functions as a moisture barrier. **(Circle T-21 on Reader-Service Card)**

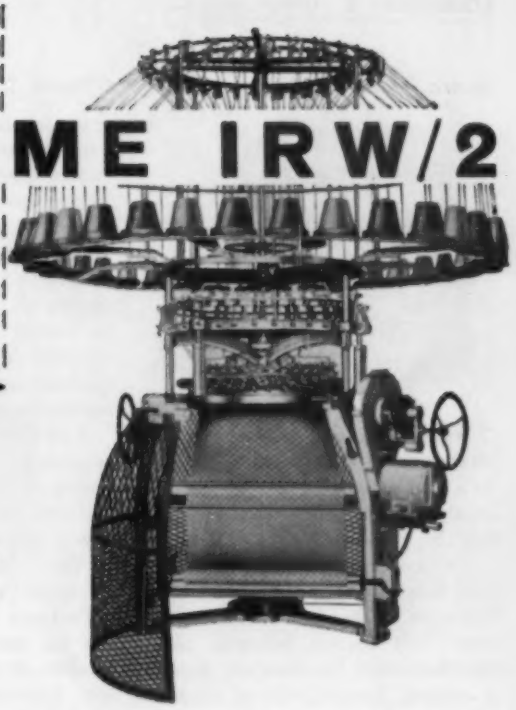
Pipe-Threading Machine

A pipe- and bolt-threading machine made by Ridge Tool Co., 400 Clark St., Elyria, Ohio, threads ½- to 2-in. pipe with only one die head and two sets of pipe dies.

The complete machine includes: (1) a speed chuck guaranteed to grip tight any pipe or conduit in forward or reverse movement; (2) one quick-opening die head that adjusts to size right in the machine; and (3) two sets of dies, one each for ½, ¾, 1, 1¼, 1½, and 2 ins.

The machine is driven by a single-phase, ½-hp., reversible motor. The motor plugs into any 115- or 120-v. light socket. **(Circle T-22 on Reader-Service Card)**

NEW SUPREME IRW/2



Puts You 50% AHEAD OF TODAY'S PATTERNED RIB INTERLOCK FIELD

- **36 feeds—50% Greater Production Than Any Present Machine**
- **50% Greater Pattern Area Than Previously Possible**
- **Unsurpassed Versatility**

Supreme's model IRW/2 knits *up to 42 yards per hour* of patterned or plain rib and interlock yard goods for outerwear and bathing suits.

Its 36 feeds give the knitter a tremendous advantage over existing machines in output and pattern area. All feeds are equipped with extra large pattern wheels (up to 6" diameter wheels supplied as standard equipment with larger diameters available optionally). The IRW/2 is 30" in diameter and available in cuts up through 16 per inch.

DUAL RACEWAY GIVES VAST SCOPE OF PATTERNS & TEXTURES FOR OUTERWEAR

The dial has a dual raceway for rib or interlock production. The needles of either raceway may be set in knit to tuck or knit to welt positioning — providing a sweeping range of patterns and textured rib or interlock production.

Supreme's new feeding rollers for accurate and positive control of rubber yarns are available as optional equipment . . . providing an extra advantage for bathing suit fabric producers.

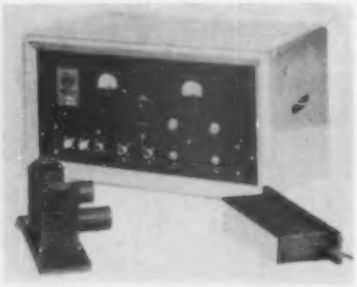
Has Supreme's Standard, Mill-Proven Features including revolving cylinder — stationary yarn stand — rugged, dogless construction, etc.

Write for free booklet on this important advance in the interlock field.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.

SE-194

Seam Detector



Seams in fabric passing through production equipment can be detected by a photoelectric drive announced by Lindly & Co., 248 Herricks Rd., Mineola, N. Y.

Two laterally spaced phototubes are used to scan fabric; and when a seam interrupts light-transmission values from light sources mounted under the phototubes, an electrical impulse is created. Amplification of the electrical impulse provides current for signalling, counting, or control mechanisms. **(Circle T-23 on Reader-Service Card)**

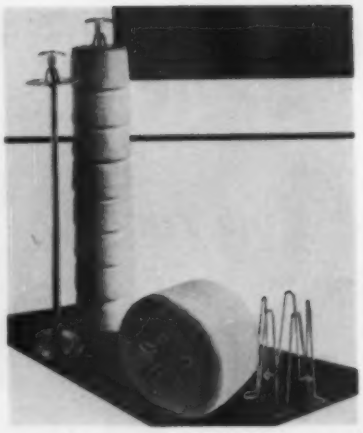
Cheese Spring Sleeves

Large cheeses of cotton or other yarn can be package-dyed on spring sleeves introduced by August Schoenenberg, Inc., 1267 W. Laurelton Parkway, W. Englewood, N. J.

The springs can be used to replace the conventional paper cones on which cheeses are wound, or the cheeses can be wound directly on the springs. Adapters to fit any type of winding machine are available if direct winding on the springs is desirable.

Yarn pressures built up by wet processing are absorbed by the spring sleeves so that no localized tensions are built up in the package. Liquor flow is virtually unimpeded because of the very open construction of the spring sleeve.

Packages wound on these springs can be mounted on the perforated spindles of the dyeing machine without intermediate plates, which increases machine capacity 30 to 40%. A special closure cap is used to seal the top of each spindle. **(Circle T-24 on Reader-Service Card)**



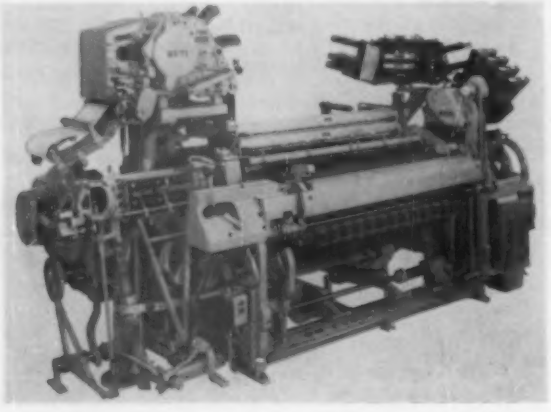
CONTINUED ON PAGE 158

SHOWN AT MILAN

The following equipment was shown at the recent Milan Textile Show (Third International Textile Exposition) in Milan, Italy.

Magazine-Loading Loom

A 4x1 multicolor high-speed loom with automatic magazine loading was exhibited by Ruti Machinery Works Ltd., Ruti (Zurich), Switzerland. U. S. sales agent is H. J. Theiler Corp., Whitinsville, Mass.



Twelve bobbins of filling are placed in a box as they are doffed at the winder.

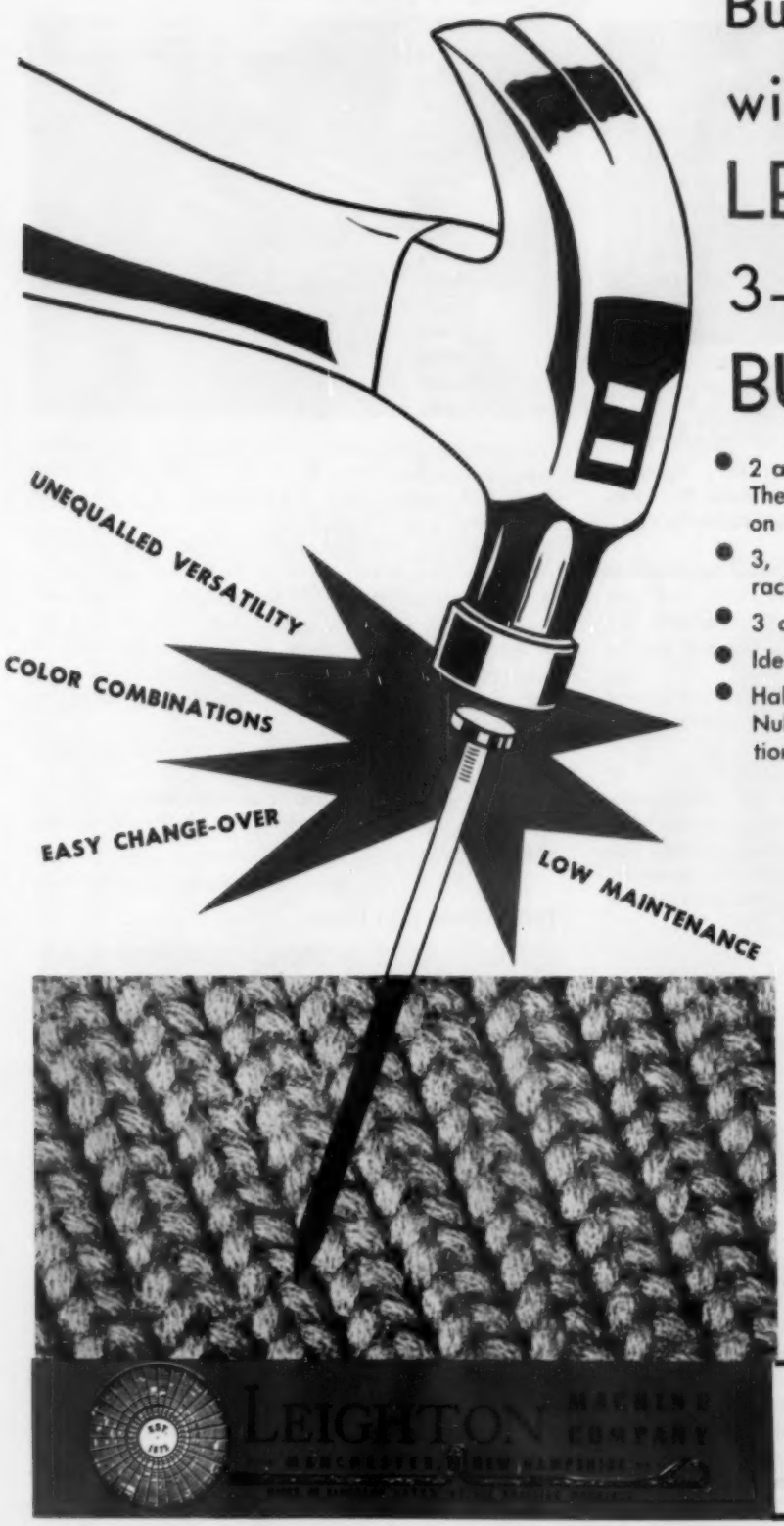
Each bobbin is held in place in the container so that it can slide into place in the shuttle when its turn comes for transfer at the loom. The filling handler places eight of these 12-bobbin containers in a supply stand at the end of the loom; and when the 12 bobbins in a container are used and the container is empty, the weaver places a new full container into transfer position on the loom.

A small bunch of filling is wound at the top of each bobbin to insure that on the automatic transfer the thread holder finds the yarn end. Before the transfer, this filling bunch is stripped off by a sleeve adaptor, which holds the yarn until the transfer is made. Cutters cut the yarn tails on the old and new bobbins, and a vacuum end-removal arrangement removes the ends.

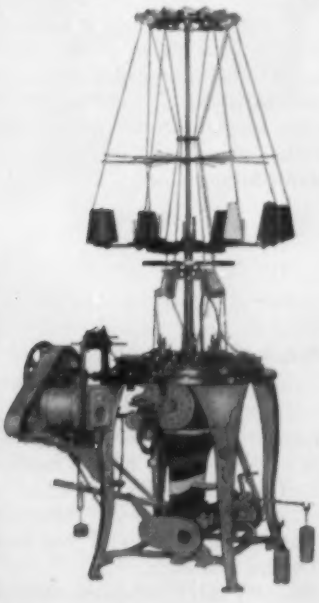
The containers are for very-fine yarns with up to four colors. For medium and coarse yarn numbers, the same automatic system is used at the loom with a larger bobbin box that is also filled automatically at the winder. **(Circle T-30 on Reader-Service Card)**

"NAIL DOWN" Bigger Bulkie Profits with...

LEIGHTON 3-4-5 cut BULKIES



- 2 and 2½ cut-built one needle rack. The only "Real Bulkie Stitch" made on a circular knitting machine!
- 3, 4 and 5 cut-built three needle rack. Built to run 2 or 4 feed.
- 3 color stripes.
- Ideal for Synthetic Yarns.
- Half Cardigan, Full Cardigan and Nubb Stitches by simple manipulation.



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CIRCLE 141 ON READER SERVICE CARD 141

Electronic Slub Counter

An electronic slub counter that consists of a six-head winder equipped with electronic measuring devices, yarn cutters, and stop motion was shown by Qualitex N.V., Enschede, Holland. Exclusive U.S. sales agent is Thomason Textile Service, Inc., 2233 Greene St., Charlotte 8, N. C. Service is by Textile Electronics, Inc., same address.

Called Qualitester, the instrument gives a rapid evaluation of yarn quality with respect to regularity and yarn defects at winding speeds up to 800 yds. per min. per spindle. The yarn is not lost or damaged and can be returned to normal production.

The machine counts and separates defects such as seed particles, slubs, neps, etc., into four categories based on size.

A cutting mechanism at each spindle cuts out any or all of the four classes of imperfections for visual examination. This examination used in conjunction with data produced makes it possible to evaluate equipment and cotton performance and to predict ends down at spinning, winder stops, and loom efficiency. **(Circle T-31 on Reader-Service Card)**

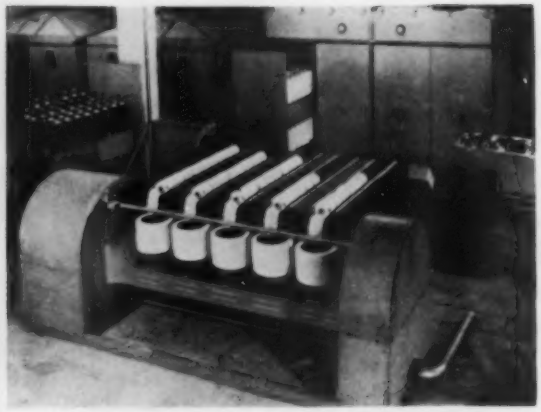
French Comb

A Continental (French) comb was shown by Sant' Andrea Novarra, Italy, represented in the U.S. by Ernest Frankl Associates, New York, N. Y.

Called the Model PS, the machine feeds 24 slivers of balled top and combs at a speed of 160 nips per inch with a burr knife or 175 nips without the knife. The circular comb consists of two half laps equipped with 10 needle bars each.

Delivery can is equipped with wheels. Combed sliver is fed into the coiler head under controlled speed regulated by a continuous-speed variator driven through a handwheel. Other features include an automatic stop motion with signal light, a predetermining counter, a dust-aspirator system driven by a separate motor, and an automatic top-comb cleaner. **(Circle T-33 on Reader-Service Card)**

Package Dryer Combination

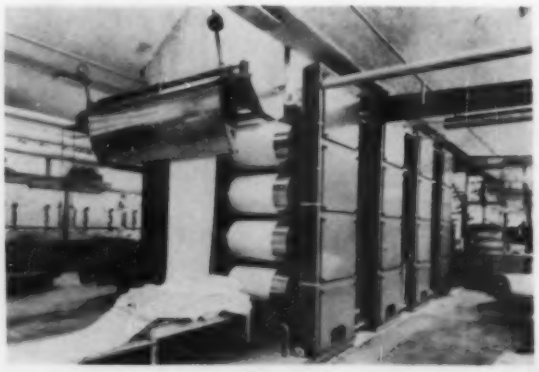


A conveyor, extractor, and cabinet-dryer combination was featured by Messrs. Scholl A.G., Zofingen, Switzerland. U.S. representative is Cosa Corp., 405 Lexington Ave., New York 17, N. Y.

In operation, wet packages are placed on a series of conveyors that deliver them to high-speed centrifuges. A 30-sec. extraction at 6,500 rpm. reduces moisture content to a point where the cabinet dryer will complete the drying operation in 30 mins. to 2½ hrs., according to the type of yarn being processed. Loading and unloading of the centrifuges is automatically controlled by electric eyes.

The centrifuges will produce 60 extracted packages per hour. The dryer circulates air from the inside to the outside of the packages and is compartmented to allow continuous operation. **(Circle T-32 on Reader-Service Card)**

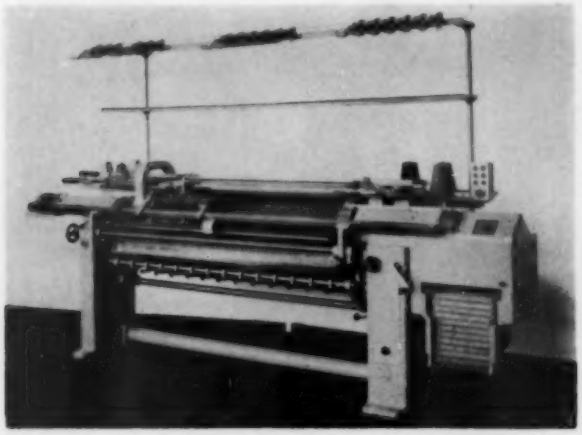
Tensionless Can Dryer



Independent drives on each can accommodate cloth shrinkage while drying and thus eliminate tension in a dryer shown by Tattersall & Holdsworth's, Enschede, Holland.

The dryer is suitable for cotton, wool, spun rayon, acetate crepes, seersuckers, and other fabrics not commonly dried on conventional can dryers. **(Circle T-34 on Reader-Service Card)**

Knitting Machine



A double-lock knitting machine with jacquard attachment and automatic stitch transfer for a large range of pattern possibilities was shown by Schaffhouse Knitting Machine Works Ltd., Schaffhouse, Switzerland. U. S. and Canadian sales agent is Robert Reiner, Inc., Weehawken, N. J.

Patterns without the jacquard attachment are: all classical stitches; loop transferring on all needles on the high-butt needles or on only the low-butt needles from the front to the back needle bed or vice versa; automatic change from 2 + 2 rib to 1 + 1 rib or to jersey, from 1 + 1 rib or from jersey to 2 + 2 rib.

Patterns with jacquards are: all multicolor cardigan patterns and tuck and racked designs combined with stitch transfer.

Length of the machine is 11 ft. 6 ins., height is 6 ft. 6 ins., depth is 3 ft. 4 ins., and weight is 2,870 lbs. **(Circle T-35 on Reader-Service Card)**

Narrow Spinning Frame

The MR.4 cotton spinning frame built by Platt Bros. (Sales) Ltd., Oldham, Lancaster, England, was shown by Atkinson, Haserick & Co., Inc., Framingham, Mass. The frame has many of the same features as the MR.3 frame, but width has been reduced to 28 ins.

Single balloon-control rings permit increased speed where long lifts are required. Lifts range from 8 to 12 ins., gauges 3 to 4¼ ins., and rings 1¾ to 3 ins.

Four drafting systems can be applied to the frame: (1) S.K.F. single-apron for fiber lengths up to 2½ ins., (2) S.K.F. double-apron for the same staple length, (3) Casablancas GX2 for staples up to 3 in., or (4) Sussen single and double aprons for fibers up to 4⅞ ins.

A new arrangement employing springs is used to balance the ring rail. Balancing is done easily and quickly since no floor fastening is used. The SpinSaVac system of broken-end collection is standard equipment, and traveling-cleaner units can be fitted readily. **(Circle T-38 on Reader-Service Card)**

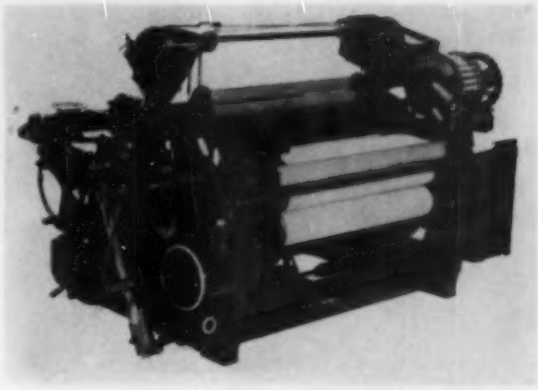
Draft-Controlled Drawing

A Versa-Matic drawing frame built by Saco-Lowell Shops, Boston, Mass., and equipped with Automatic Draft Control (ADC) made by Zellweger Ltd., Uster (Zurich), Switzerland, was exhibited at the exposition.

The ADC system is an arrangement for compensating for variation in sliver weight. It consists basically of three parts: (1) a transducer for electronically measuring sliver weight per unit of length mounted on the frame so that measurement occurs between the second and third rolls, (2) an amplifier for converting the weight measurement into a compensating signal, and (3) a gear control unit for controlling the draft of the frame to correct variations in sliver weight.

The limits of correction are 20% above and 20% below the mean draft. The Versa-Matic-ADC machine is said to almost eliminate weight variation and to make possible higher quality with fewer doublings. **(Circle T-36 on Reader-Service Card)**

Automatic Looms

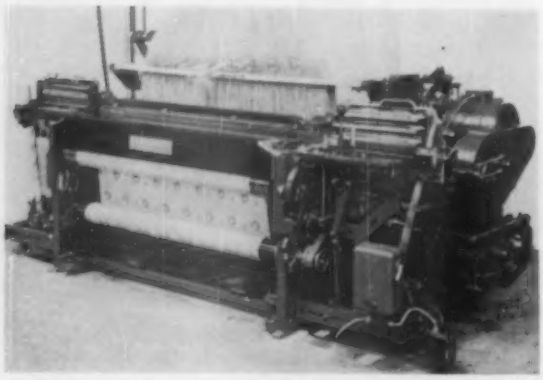


The Picanol President line of looms shown by Metiers Automatiques Picanol, Picanol Works, Ypres, Belgium, and to be sold in the U. S. by Saco-Lowell, 60 Batterymarch St., Boston, Mass., included: (1) a 118-in. sheeting loom running at 140 ppm., (2) 93-in. sheeting loom at 177 ppm., (3) 69-in. 16-harness dobby-equipped loom at 180 ppm., (4) a 48-in. loom weaving corduroy and equipped with Unifil running 220 ppm., (5) a loom 48 ins. wide equipped with automatic-transfer box loader running 240 ppm., and (6) a 48-in. loom with a circular battery weaving poplin at 260 ppm.

With each of these looms, it is possible to weave an extensive range of fabrics; and it is also possible to choose the appropriate model for a special fabric to be produced.

Cam looms are available for 6 and 8 shafts, or 4 and 6 shafts; dobby looms have 10 and 12 shafts, 12 and 16 shafts, or 12, 16, or 20 shafts; and jacquard-equipped looms have reed space of 36 to 74 ins. and 79 to 118 ins. **(Circle T-37 on Reader-Service Card)**

Pick-and-Pick Loom



A 4x4 pick-and-pick loom designed for weaving upholstery fabrics was shown by Butterworth & Dickinson Ltd., Globe Works, Burnley, England. A large shuttle is used to weave continuous-filament man-made-fiber yarns or coarser yarns in a hollow bobbin.

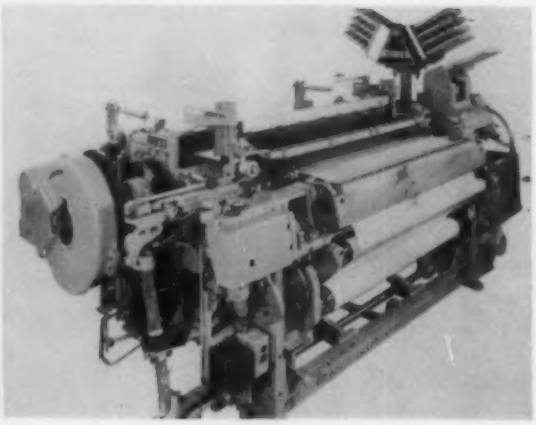
The combination of this large filling-yarn capacity and devices such as a photoelectric feeler lets weavers handle more looms. A new method of pick selection prevents shuttle picking if an empty shuttle box is not available. **(Circle T-39 on Reader-Service Card)**

Narrow-Gauge Comber

A narrow-gauge comber called Perl that runs 170 nips per min. without vibration and produces 25% more stock than previous models was shown by Societe Alsacienne de Constructions Mecaniques, Mulhouse, France.

The burr knife has been eliminated, and a built-in exhaust fan assures a cleaner top and better noil. The top comb is double stripped. **(Circle T-40 on Reader-Service Card)**

Automatic-Magazine Loom

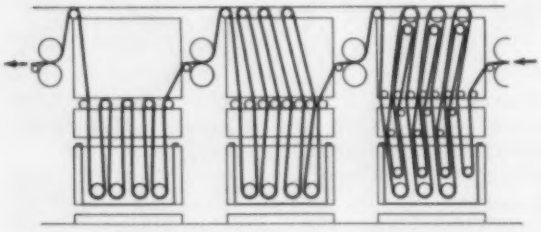


A single-shuttle cotton and other staple-fiber loom with 12-bobbin, automatic filling container, and yarn-transfer units from which bobbins are placed in the shuttle in the order they are wound was demonstrated by Ruti Machinery Works Ltd., Ruti (Zurich), Switzerland. The loom will be sold in the U. S. by H. J. Theiler Corp., Whitinsville, Mass.

The batteryhand is said to be eliminated with the unit, and the weaver is able to tend the normal number of looms with practically no additional workload.

Since filling yarn is fed to the loom continuously from the same cones of yarn at the winder, filling bands in the fabric are reduced or eliminated. Jerk-backs are also said to be eliminated with improved yarn cutters at the loom. **(Circle T-41 on Reader-Service Card)**

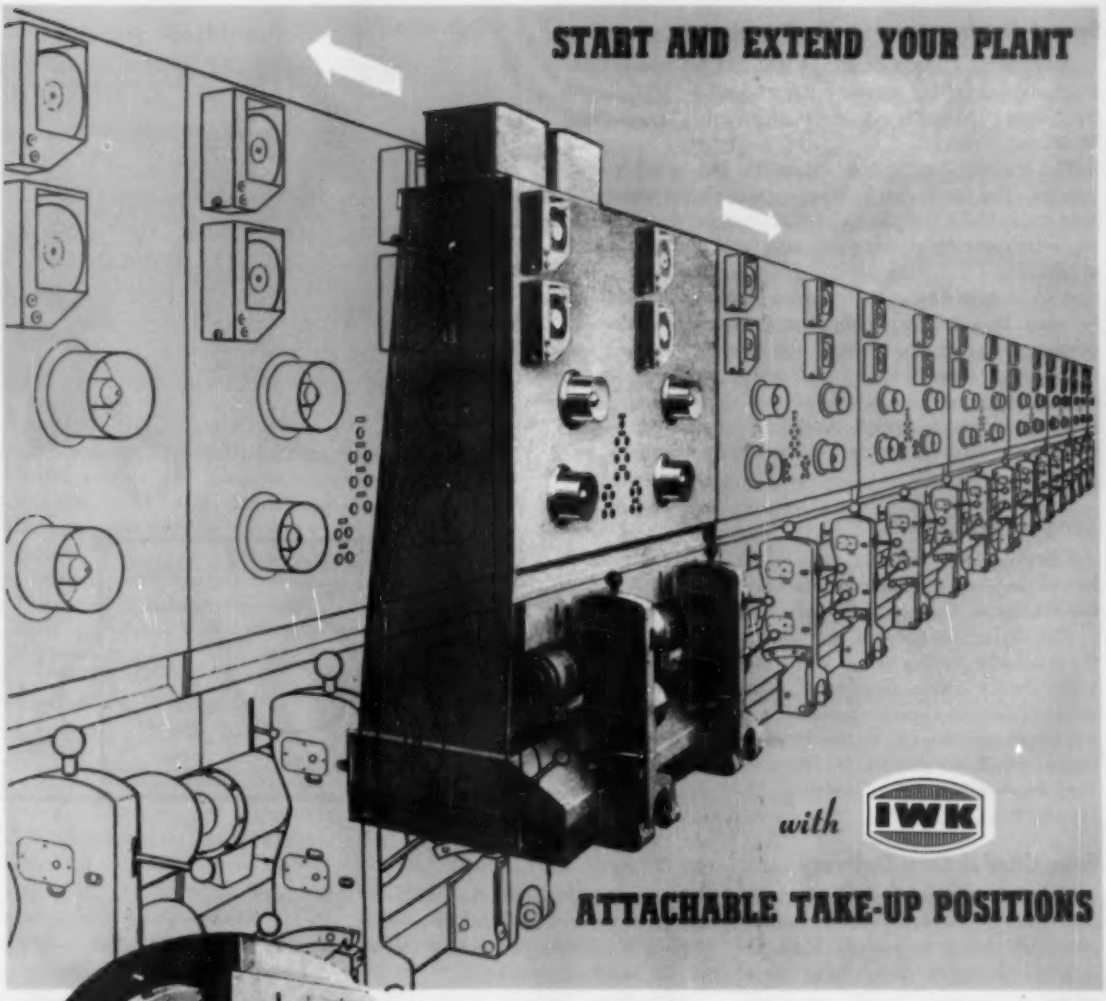
Enclosed Open-Width Washers

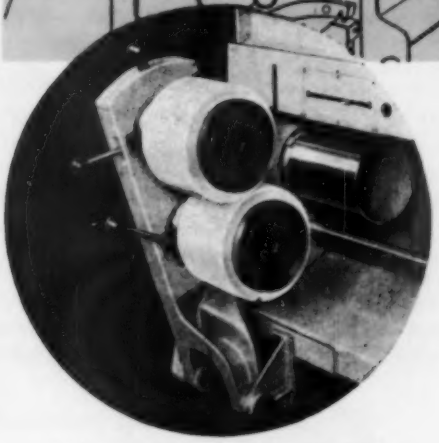


The benefit of both steam and hot water properties are utilized by washers shown by Muller-Fichter, 70 rue St. Jacques, Thann, France.

Passage of cloth through the machine can be varied by threading-up to give a straight pass or a doubled pass through the machine.

The machine can be set up with one or more units to perform any washing or treating process and is supplied with automatic temperature and liquor-feed controls. **(Circle T-42 on Reader-Service Card)**





Tandem arrangement of bobbins for doubling the production.

Optional extension of the machine to the left or to the right by attaching further take-up positions.

Space-saving design. The main drive is separate from the machine, with the whole range of spinning heads being available for the take-up positions.

Individual stopping of each thread. Friction roller, traverse and godet wheels of each take-up position are driven by individual motors.

High traverse speed for extreme thread speed with smoothly operating machine.

Take-up positions available also in double-sided design according to the arrangement of spinning heads.

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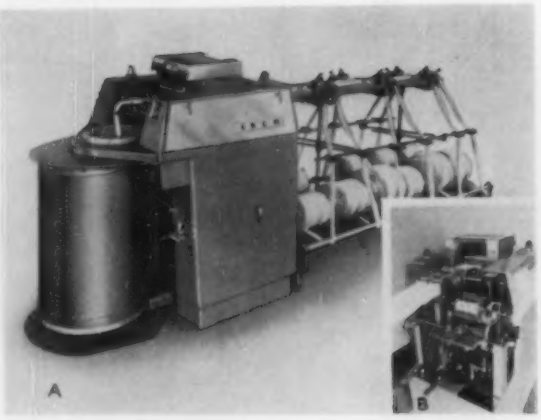
Speed Drafter and Sliver Regulator

A single-head speed drafter *A* that can be used in conjunction with either bobbin or can feeding was shown by Societe Alsacienne de Constructions Mecaniques, Mulhouse, France.

The machine has 99 draft ratios that can be set by two handles. The frame can be used for drawing worsted and man-made fibers and can be used in combing and recombing sets, spinning preparation, and in post-dyeing operations.

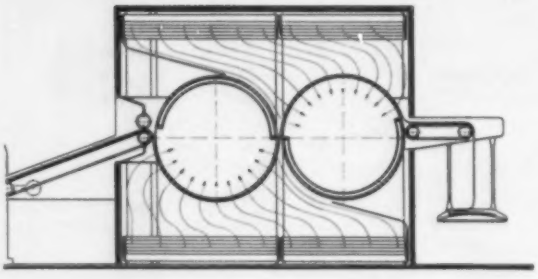
Also shown was a sliver hydro-regulator *B* that can be used as a leveler in the last finishing operation of combing sets. It fits between the central part and the feeding mechanism of the speed drafter and controls the feeding speed and draft ratio so that the drafter always runs at maximum speed. A differential feeling device spreads the slivers. **(Circle T-43 on Reader-Service Card)**



Tensionless Dryer

Fiber or fabric is held against perforated drums by hot air in a drying system shown by Fleissner & Sohn, GmbH & Co., Egelsbach-Frankfurt, Germany.

The drying capacity of the machine is dependent on the number of drying drums in the range and will average 1,980 lbs. of cotton fabrics per 8 hrs. or 2,640 lbs. of woolen goods in a similar period per drying drum. Fleissner equipment is sold in the U.S. through Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass. **(Circle T-45 on Reader-Service Card)**



Four Cards, One Delivery

Four cotton cards arranged in tandem with a conveyor belt to deliver the four slivers from the calender rolls to a single coiler head were shown by Bettoni Fratelli, Bergamo, Italy.

Production of each of the four cards runs from 4.4 to 11 lbs. per hr., which gives a maximum production of 44 lbs. for the four-card unit.

Advantages include lower initial cost than for conventional cards, half the floor space, and a 30% power saving. Doubling and drafting of the four slivers produce more even yarn, and cleaning is better. Stripping and grinding are greatly reduced. **(Circle T-47 on Reader-Service Card)**

Traveling-Spindle Winder

A traveling-spindle cone winder called Multi-Coner Type 10 was shown by Schweiter Ltd., Horgen (Zurich), Switzerland.

Eight winding heads and spindles travel in a circle past an automatic knotting head, in contrast to other winders that have many spindles traveling past a loading, unloading, and knotting location.

All spindles wind constantly; and if an end breaks, it is retied in seconds when the spindle passes the knotting head. If the supply bobbin runs out, it is automatically replaced by a full bobbin.

The machine is made in eight-spindle units for installation in batteries. One operator can run 4 to 12 machines, depending on the number of yarn, size of the supply packages, and number of spindles (32 to 96) per unit. **(Circle T-48 on Reader-Service Card)**

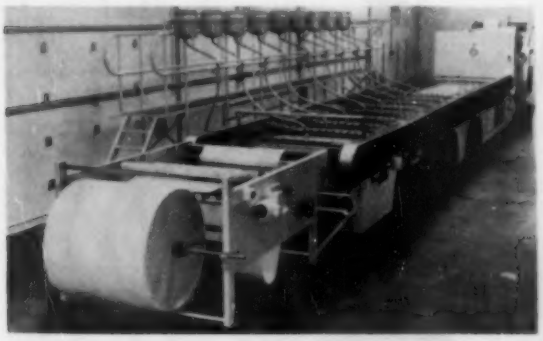
Web Purifier for Cards

A carding development called the Crosrol web purifier was shown by Platt Bros. (Sales) Ltd., Oldham, England. The attachment is said to improve yarn quality and increase carding production 10 to 30%.

A pair of rolls is mounted on the card between the doffer comb and the calender rolls so that they function in the manner of peralta rolls on wool cards. The rolls are equipped with a weighting adjustment to apply pressure on the web as it passes through the nip of the rolls.

The web from the doffer comb is passed through the Crosrol where neps, nips, seed particles, and other foreign material are crushed. The web then goes through the calender rolls and to the coiler head. **(Circle T-49 on Reader-Service Card)**

Screen-Printing Machine



Storck & Co.'s, Apparatenfabrik, Amsterdam, Holland, showed an eight-color screen-printing machine with several improvements over previous models.

Cloth-feeding has been simplified and made more accurate, and provision has also been made for adjusting the screens more quickly. A repeat-control device has been added to overcome inaccuracies in repeats, and the dryer has been given added capacity and a new constant-tension drive. **(Circle T-44 on Reader-Service Card)**

Direct Spinning Frame

A direct spinning frame that feeds from horizontal tubes in the creel and has a four-roll double-apron drafting system was shown by Tweedales & Smalley Ltd., Castleton, Rochdale, England.

The machine is essentially the same as the standard ring-frame model except for the drafting system and creel. Conventional frames can be converted to direct spinning where the gauge is suitable.

The drafting system has a condensing zone between the two double aprons. On entering the back zone, the sliver is controlled by the back line of apron rolls. A small amount of draft between the aprons and the third line of rolls reduces the bulk of the sliver, which is then condensed by means of a porcelain condenser feeding from the front pair of aprons where most of the draft is put in the stock.

Cross-wound cheeses of false-twist sliver, made on a high-speed drawing frame, are held in the creel by two rows of support arms. The packages are unwound by frictional contact with fluted wooden driving rolls arranged to prevent stretching the sliver. The false twist is lost between the cheese and drafting rolls. **(Circle T-46 on Reader-Service Card)**

Bottle-Bobbin Winder

The Hacoba Bottle Bobbin Winder Model FM was shown by Plutte, Koecke & Co., Wuppertal-Barmen, Germany. The six-head unit winds 22x5.2-in. packages on ejectable tubes.

After the winding tubes are removed from the cores of the yarn packages, perforated dye tubes can be placed in the package for dyeing or the coreless tubes can be mounted on a warper creel for warping.

The yarn is laid as in the case of a cross-wound cheese, but only 14 ins. are wound from the inside to the outside. There may be up to 133,000 ins. wound in this way on a normal cross-wound bobbin.

Because of the bobbin build and size, dye plant capacity is increased 30 to 50%; and it is possible to operate with a lower liquid ratio that saves up to 16% in dyes and chemicals.

One machine unit with six winding points is about 7 ft. 4 ins. long, 2 ft. 7 ins. wide, and 5 ft. 9 ins. high. **(Circle T-50 on Reader-Service Card)**

Pressure-Dyeing Machines

Stainless-steel pressure-dyeing machines for stock, top, or yarn were shown by Longclose Engineering Co. Ltd., Crescent Works, Dewsbury Rd., Leeds 11, England.

Capacities available include 1-lb. to 800-lb. machines that will work at temperatures up to 266° F. The machines can be supplied with various fittings that adapt them to handle fiber in any form. **(Circle T-51 on Reader-Service Card)**

Open-Width Bleaching Range

An open-width bleaching range was shown by Storck & Co.'s Apparatenfabrik, Amsterdam, Holland. Reaction chambers are based on cast iron lined with stainless steel. Washing compartments feature vibrators that speed up washing so that each compartment has a triple washing effect. **(Circle T-52 on Reader-Service Card)**

Rib-Knitting Machine

A multifeed rib-knitting machine, Type RH, was demonstrated by C. Terrat Sohne, Stuttgart, Germany. The machine is said to be simple in construction, easy to operate and maintain, and specially designed for high production with one or two yarn ends per feeder in 1x1, 1x2, and needle set-out patterns.

An output of about 60 yds. per hr. is said to be possible on the 15-in.-dia. machine running at 50 rpm. with 22 feeders on 24s cotton yarn at 30 courses per inch.

Features of the machine are: a cam system that places minimum strain on needles, replacement of yarn cones without stopping the machine, and simple change from 1x1 to 2x2 fabric without changing cams. **(Circle T-53 on Reader-Service Card)**

CONTINUED ON PAGE 160

Parade of Progress

American Textile Machinery Exhibition – International

Preview in TEXTILE WORLD – MAY ISSUE

May 23-27, 1960 is *the big* week in Convention Hall, Atlantic City, New Jersey—it's the week of the largest, most comprehensive specialized textile trade fair ever held in the United States.

New fibers, new yarns, new finishes and new consumer demands have created many technological and scientific problems that *must* be solved. New developments in equipment and manufacturing techniques to help provide the answers to many of these problems will be shown at the ATMA show. TEXTILE WORLD allows you to preview the show through the pages of the May issue.

The May issue will provide you with a list of exhibitors, their locations at the show, and a "quick look" at much of the equipment to be shown by means of the "Guide to Exhibitors" —a special section which will include *the ads of exhibitors*. This issue is *must* reading for all textile men interested in keeping up with fast moving technologies of efficient mill operation—*particularly those who will be unable to attend the show.*

Advertising forms close April 5th, 1960.

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Textile World

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New Electrical Controls Operate Dual-Fuel Boilers

Today, modern electronic flame-safeguard controls, precise operating and interlock controls, and constant mill maintenance and know-how combine to burn fuel safely in small dual-fuel burners.

There are three functions of the control system of a dual-fuel-fired boiler, to: (1) safeguard the installation against a pressure vessel explosion or burn-out, (2) safeguard the installation against a fuel explosion in the furnace, and (3) regulate the operation of the burner efficiently for the desired thermal output.

These three basic functions are performed by a variety of electromechanical devices integrated into a control system that can be a relatively simple off-on system or a system as complex as your needs demand.

Other types of devices that either supplement the systems presently used or are now in the laboratory stage include closed-circuit television, sonic devices, and combustible analyzers.

Controls Have Six Main Appliances

There are six devices used in today's burner control system:

1. Limit switches generally consist of pressure- or temperature-actuated switches, thermal overcurrent devices, and water-level controls.
2. Operating controls consist of air or liquid thermostats and pressure-actuated switches.
3. Fuel-air interlocks include gas and oil pressure-actuated switches, fuel-temperature switches, air-flow proving switches, and position-indicator switches.
4. Fuel-shutoff valves guard all fuel-entry points into the combustion chamber.
5. Electronic flame-monitoring detectors made up of phototubes, flame rods, and photoconductive cells.
6. Programing controls.

Programing Controls Are Important

Programing controls are the essential part of your control system; limit switches, operating controls, and interlock are all connected to the programing control. The burner motor, pilot assembly, main fuel valves, and alarm are powered from it. It also contains the flame-detector electronic-amplifier circuit and the switching for the modulator assembly.

Programing provides all the switching and timing sequencing necessary to properly program the burner start-up cycle.

There are two considerations in designing the burner control circuit: (1) the requirements of the particular installation to assure proper operation and (2) to comply with a variety of regulations that pertain to this type of equipment.

Codes, regulations, recommended practices, industry standards, etc. have been developed to insure that the safety of a fuel-burning installation is not left to chance.

When you select a burner control system, it is always best to specify that controls and other devices that make up the system are approved by insurance underwriters' testing laboratories and that the over-all system is acceptable to the insurance underwriter for your particular job.

New Controls Are Preassembled

In the past, the common practice was to assemble and wire the control system on the job. But today the complete control system is assembled in a cabinet prewired, tested, and delivered to the job with only a minimum amount of field wiring required.

However, a well-designed and manufactured product is only half of the job. Accurate installation of the right components for the job with field know-how, testing, and operator training finish the job. Without this combination an installation is less safe then one with no safety equipment at all. *Based on a paper presented by P. K. Ryder at a meeting of the Textile Subcommittee, American Institute of Electrical Engineers.*

ATMA

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JOIN THE PROFIT PARADE! VISIT CONVENTION HALL IN ATLANTIC CITY, N. J. IN 1960* AND SEE THE WORLD'S LARGEST COLLECTION OF ADVANCED TEXTILE MACHINERY. OVER THREE HUNDRED (300) EXHIBITORS WILL DISPLAY OVER THIRTY MILLION DOLLARS ($30,000,000.00) WORTH OF MODERN EQUIPMENT. RECENT ADVANCES IN TEXTILE CHEMISTRY WILL BE MATCHED BY THE LATEST MECHANICAL DEVELOPMENTS.

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American Textile Machinery Exhibition International

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NEW LITERATURE

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

Tow crimpers — Specifications for Model DC crimper used for low-stiffness man-made fibers and Model W crimper designed for more rugged service on heavy sliver are given in bulletins from Turbo Machine Co. (F-1)

Metering chemical pumps—For handling corrosive and noncorrosive chemicals are described in Pulsafeeder bulletin that covers typical applications, types of hard-to-pump fluids, and a detailed description on how the pumps work. Process Equipment Div., Lapp Insulator Co., (F-2)

Power-demand limiter—Designed to control power demand during the warm-up period on electric unit ventilator applications and consisting of an outdoor adjuster, a cabinet housing a proportional amplifier, and a proportional motor operator is described in bulletin from Barber-Colman Co. (F-3)

Fiber setter—Bulletin describes Model FS-60 for setting man-made fibers in baskets, in cans, or in bobbin racks. Production is 150 to 200 lbs. per hour, and the machine is easily adapted for uses in any process handling staple or tow. Turbo Machine Co. (F-4)

Fluid-power equipment—Bulletin includes specifications, illustrations, references, and descriptive matter on the complete line of standard Oilgear and Servocontrol pumps, motors, transmissions, and other equipment. Oilgear Co. (F-5)

Long-fiber spinning frame—That handles fibers from 1½ to 8 ins. long is described in illustrated booklet that covers drafting system, spinning rings, balloon control, creels, drives, and other major features. Roberts Co. (F-6)

Drawing frame—With automatic draft control for compensating variation in sliver weight is described in booklet that tells how Saco-Lowell Shops and Zellweger Ltd. developed the machine and how it works. Saco-Lowell International Div., Saco-Lowell Shops. (F-7)

High-speed comber—That can accommodate 1,000-grain laps and produce 52 lbs. per hr. is described in Super J bulletin from Whitin Machine Works. (F-8)

Narrow spinning frame—With 27-in. over-all width, individual spindle drive from side shafts, straight-line spinning, and traverses up to 12 ins. is described in booklet from Whitin Machine Works. (F-9)

Spinning frame—With magnetic-pressure system on drafting rolls that requires no saddles, stirrups, levers,

springs, weights, cap bars, or oiling is described in bulletin from Saco-Lowell International Div., Saco-Lowell Shops. (F-10)

CHEMICALS & SUPPLIES

Wool scouring — Technical bulletin tells how the use of Sterox 21-K for fulling and scouring of wool and wool-blend fabrics cuts total chemical and processing costs, reduces handling and storage problems, and results in better quality goods. Monsanto Chemical Co. (F-11)

Polypropylene fiber — Chemical and physical properties of Reevon Olefin Fiber 800 are given in bulletin that covers tenacity, breaking strength, water absorbency, dyeing characteristics, and other pertinent facts. Reeves Bros., Inc. (F-12)

Textile chemicals—44-p. booklet describes more than 100 chemicals for the textile industry and gives applications, formulations, and physical property data for chemicals used in 41 textile processing operations. Union Carbide Chemicals Co. Div., Union Carbide Corp. (F-13)

Chemical cleaning—Technical bulletin No. 102 describes methods of cleaning power-plant equipment, stainless steel, aluminum and aluminum alloys, cast-iron equipment, and other items. Chas. Pfizer & Co., Inc. (F-14)

Hydroxyethyl cellulose—A nonionic synthetic colloid that is readily soluble in hot or cold water and has excellent tolerance for dissolved electrolytes is described in 16-p. booklet containing properties, preparation, solutions, applications, and specification limits. Union Carbide Chemicals Co. Div., Union Carbide Corp. (F-15)

Ultrasonic cleaning—That utilizes the agitation set up by sound waves generated in a liquid medium is described in a service bulletin that gives a number of cleaning tips such as the fact that alkaline and acidic detergents are frequently better for ultrasonic cleaning than the more viscous solvents. Oakite Products, Inc. (F-16)

Chemical catalog—That lists specifications, end uses, and technical data for more than 1,000 products is offered by Borden Chemical Co. (F-17)

Water softening—Booklet describes the process and gives information on selecting and sizing of equipment. Automatic versus manual controls and calculations of softening capacity are discussed. The system uses zeolite materials. Cochrane Corp. (F-18)

Electronic solution controller—Bulletin describes automatic control of caustic, acidic, or aqueous solutions in either continuous or batch-type chemical-process systems or textile bath equipment. Electro Mechanisms Corp. (F-19)

Safety cleaning solvents—That permit

WORK...

HAND-IN-HAND WITH D&F
"Coordinated Production"
in the Woolen System

Davis & Furber "Coordinated Production" **means** the successful efforts of D&F Men, Methods, Machines and Materials to produce more useful products of better quality and greater efficiency.

D&F "Coordinated Production" **means** the most modern, most productive wool preparatory, Carding, Spinning, Yarn and Finishing Machinery Systems in the world.

It **means** a single, dependable source for a complete line of Accessories, Supplies, and Maintenance Parts: Card Clothing, Garnett Wire, Napper Clothing, Condenser Tapes, Rubb Aprons, etc.

It **means** Operational and Maintenance Instruction, Advice and Counsel on D&F equipment.

It **means** impartial, technical, In-the-mill survey, Analysis and Recommendation.

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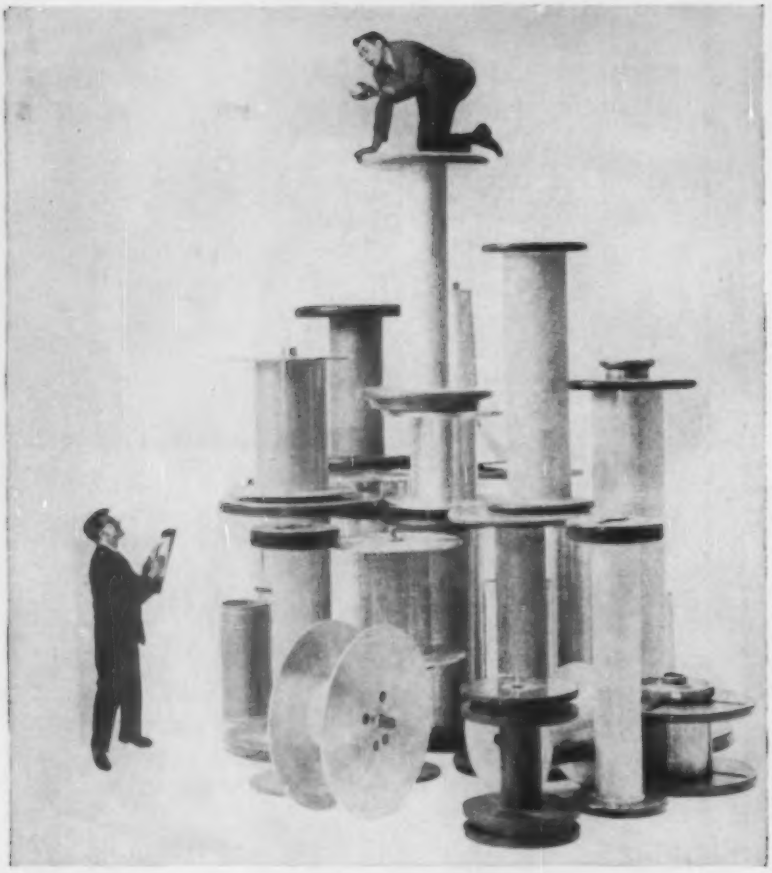
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

CIRCLE 151 ON READER SERVICE CARD 151



GOT A BOBBIN PROBLEM...?

With higher speeds? bigger packages? longer life?
moisture? drive accuracy? balance? finishes?
synthetic yarns? pressures? other problems?

No one understands your need for bobbin design that is exactly right for your yarns, and bobbin performance that is 100% dependable, as intimately as we at the Lestershire Division of National. That's why we gear all of our manufacturing skills and services to your bobbin problem . . . not just to the manufacture of one convenient "standard" line.

Our factory representatives take pains to study your processes. Our designers work with infinite precision, and test and re-test to assure maximum bobbin concentricity and service life. Every development in yarns is followed to keep abreast of changing bobbin requirements. We know the textile field is too competitive for you to risk the cost of poor bobbin performance, or inferior quality.

Finally, we price all Lestershire Bobbins and Spools based on built-in quality giving top performance, long life, and operating economy.

Why not toss that bobbin problem at us . . . *today?* You can get in touch with us through any of the addresses below. Or contact your nearest National sales office. Dept. A-14F.

LESTERSHIRE SPOOL DIVISION
NATIONAL VULCANIZED FIBRE CO.
WILMINGTON 99, DEL. • *Plant:* 140 Baldwin St., Johnson City, N. Y. • *In the south:* Odell Mill Supply Co., Greensboro, N. C. • Greenville Textile Supply Co., Greenville, S. C.

152 CIRCLE 152 ON READER SERVICE CARD

users to select a formulation meeting their specific cleaning requirements are described in a bulletin that tells how to cut the wasteful use of high-cost solvents for routine cleaning. Harco Chemical Co. (F-20)

ENGINEERING & MAINTENANCE

Waste treatment—Bulletin gives case histories describing how instruments have been applied to industrial-waste-treatment systems to prevent stream pollution. Industrial Div., Minneapolis-Honeywell Regulator Co. (F-21)

Chemical tank covers—Bulletin describes high-strength self-supporting tank covers designed to handle strong acid solutions at elevated temperatures in the textile and chemical industries. The covers replace metal, brick, and lead fabrications at comparatively low cost. Ceilcote Co. (F-22)

Electrical switches—Recent edition of "Uses Unlimited" tells what's new in switches and gives a number of case studies describing unusual applications. Micro Switch Div., Minneapolis-Honeywell Regulator Co. (F-23)

Machinery cleaning—Is discussed in booklet entitled "A Guide to More Efficient Cleaning in the Textile Industry." Subjects covered include cleaning and derusting reeds, hot-tank cleaning of loom and machine heads, steam cleaning of dye kettles and acidic treatment of dye boxes, removal of heavy deposits from tenter chains and slasher drums, cleaning man-made-fiber processing equipment, and regular maintenance of floors. Oakite Products, Inc. (F-24)

Gear belt drives—That combine the flexibility of belt drives with the advantages of chain and gear drives and eliminate slippage, metal-to-metal contact, stretch, and lubrication are described in bulletin from Browning Mfg. Co. (F-25)

Pipe hangers—Booklet describes self-locking one-piece pipe hangers that offer lower initial cost and better control. Dimensional data for supporting pipes from ⅛ to 8 ins. are included. Auto-Grip Div., Automatic Sprinkler Corp. (F-26)

Frequency meters—With guaranteed permanent accuracies of ±0.1 per cent of calibrated frequency are described in bulletin that covers meters in various ranges and signal voltages from millivolts upwards. They are designed for continuous operation and are independent of wave form and exact input voltage. James G. Biddle Co. (F-27)

Rust control—38-p. systems catalog contains comprehensive treatise on rust and corrosion control and discusses specially formulated primers and colorful top coatings that stop rust and corrosion. Rust-Oleum Corp. (F-28)

Masonry repair kit—An epoxy-polya-

mide compound called Plastic Mastic for repairing masonry, machinery, pipes, plumbing, and many other items is described in booklet from Williamson Adhesives, Inc. (F-29)

Textile electrical installations—Proposed recommended practices for electrical equipment and wiring commonly used in textile mills are covered in booklet from American Institute of Electrical Engineers (F-30)

GENERAL

Fabric labeling—Ideas and tips on how to comply with the Textile Fiber Products Identification Act are contained in a report prepared for users of label-making machines manufactured by Markem Machine Co. (F-31)

Office and shop equipment—Is described in "Equipment Manual" that also contains locker-room jokes and cartoons. Free one year's subscription from Precision Equipment Co. (F-32)

Point-of-sales labels—And other display devices that employ color transparencies and art work are described in folder from Denison Mfg. Co. (F-33)

Cotton classing rooms—Recommended lighting practices for color grading based on methods developed and followed by USDA are available in a booklet from U. S. Dept. of Agriculture. (F-34)

"Think Safety"—Is the theme of 16 new safety posters that illustrate how fork-truck accidents occur and how to prevent them. Automatic Transportation Co. (F-35)

Suspension scales—That have a sealable accuracy of 0.1 per cent of the full scale capacity and are operated by compound leverage are described in bulletin from W. C. Dillon & Co., Inc. (F-36)

Colored corrugated boxes—20-p. illustrated booklet, "How to Select Customer-Catching Colors on Corrugated Containers," tells how to use colored packages in announcing changes in product lines. Stone Container Corp. (F-37)

Truck-loading docks—Facts, figures, and equipment data concerning loading docks and yards and adjustable dock boards are offered by Kelley Co. (F-38)

Materials-handling equipment—Overhead-crane, monorail, vacuum, and other handling systems are described in condensed catalog that also features installation photographs and engineering data. Whiting Corp. (F-39)

Safer materials handling—An insulated power bar for overhead handling equipment that protects against accidents and reduces maintenance and power interruptions is described in bulletin from Cleveland Tramrail Div., The Cleveland Crane & Engineering Co. (F-40)

WHEN THE RECEPTACLES ARE KENNETT, PROCESSING COSTS GO DOWN! . . .

The reasons are simple. Kennett Receptacles handle delicate yarns and fabrics more gently—cut loss from damaged yarns and fabrics. Kennett Receptacles last longer—save on replacement costs. And Kennett Receptacles are easier to handle—speed your processing.

Kennett Receptacles can be slammed, banged, dropped and manhandled in a mill for years. Yet their glossy-smooth surface doesn't crack, splint, crush or splinter. They're made of tough, lightweight National Vulcanized Fibre, a *plastic* that has never been equalled for containers in the textile industry.

Standard Kennett Receptacles are available in a huge range of styles and sizes, covering every ordinary need in textile processing. Special requirements are often filled with only a slight modification of a basic Kennett style. And all Kennett products are backed by National's years of experience and proved dependability. For full information contact your nearest National sales office. Or write direct for our full line folder. Address Dept. A-9.

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RECEPTACLES BY
NATIONAL
VULCANIZED FIBRE CO.
WILMINGTON 99, DELAWARE

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GUARANTEED

to give drip-tight leak-proof seal

greates[illegible]e in unions **DART**

For over 55 years the firm guarantee back of each and every DART UNION sold has been — *"if one should leak through we will give you two"!* The record reveals that less than 1 in every 100,000 has proven to be faulty. The extra wide bronze to bronze seats, precision ground to a true ball joint, mounted in heavy malleable iron pipe ends and protected by an extra heavy union nut, make a drip-tight, leak-proof connection WITHOUT EXCESSIVE WRENCHING time and time again.

Guarantee positive tight connections and extra long service on your pipe lines by using the DART GUARANTEED UNION.

Yours on request: Descriptive brochure on Dart Unions and Union Fittings.

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CIRCLE 251 ON READER SERVICE CARD

21st

SOUTHERN TEXTILE EXPOSITION

October 3-7, 1960

TEXTILE HALL

Greenville, S. C.

339 exhibitors, including major manufacturers of textile machinery, equipment and supplies, will be on hand to demonstrate and explain their products.

There will be on display essentially everything of importance to top executives and those concerned with research, purchasing and production.

TEXTILE HALL CORPORATION

322 West Washington St.
Greenville, South Carolina

"An institution of the textile industry since 1915"

CONTINUED FROM PAGE 49

should be and that it will have more trash and more tight groups of fibers when it reaches the opening line.

Small Adjustments Are Best

The production of the feeder normally is between 100 and 250 lbs. per hr. Small adjustments in the rate of production are best made by replacing the production pulley with one of a different diameter. This pulley, usually on the doffer-roll shaft, controls the speeds of all the feeder assemblies. When the production pulley is changed, the relative speeds of the rake or combing roll, the doffer, and the aprons remain constant. This method is very satisfactory until the speed of the lifting apron becomes greater than 25 rpm.

If the desired production has not been reached at 25 rpm., then the feed aprons should be slowed down. Slowing the feed apron increases production by allowing the lifter pins to grip the stock more securely. What happens is that when the feed apron carries the fibers to the lifter apron, they are picked up and held until knocked back by the rake and dropped into the hopper.

This action creates a rolling motion basically moving in the same direction as the lifter apron. Because the stock and the apron are moving in the same direction, the pins do not get a strong bite and some cotton is dropped on the upward path to the rake. The rolling motion is decreased with a slow feed apron, and the lifting pins penetrate the stock better. Since the setting between the rake and the apron is still the same, increased production is gained without losing any opening action.

A quick glance into the feeder hopper is all that the superintendent needs to gauge the setting of the feed regulator. A hopper filled high with stock does not function properly because the sand and heavy trash cannot fall down through the apron slats. On the other hand, a hopper that is starved will prevent the feeder from keeping up to production because the apron is not carrying enough stock to the rake. Empty space on the pins indicates points at which no work is being done. It is far better to keep the apron pins loaded and to set the comb closer than to have a wide set-

ting and not keep the apron loaded.

A fast walk around the feeder will show the superintendent the care it is getting. If the aprons are not sagging, this condition indicates that the adjustable setscrews at the bearings have been set to compensate for stretch. If all slats are in place, then broken or damaged slats have been replaced. If there are no defective pins—hooked, bent, or broken—chokes or uneven feeding are not likely to occur.

The superintendent next takes a fast look at the doffer end of the feeder to check both the doffer and the grid bars under it. The bars should be smooth, without crooks, and clean of any sticky residue that might interfere with the even flow of stock. The leather blades of the doffer merit a good long look, for they are important in providing an even feed across the machine. The leathers should be stiff and of the same length from side to side and from one blade to the next. It is poor economy to keep on using old soft leathers.

The superintendent's last move here is to stoop down and check the waste beneath the machine. The character of the waste is an excellent key to the correctness of the settings. More significant, however, is the amount of trash present. This factor lets him know if the cleaning schedule is being followed. Trash must be removed before it builds up so much that it is drawn back into the cleaned stock.

At this point, the superintendent is satisfied that the mixing department is functioning properly. He did not spend much time in making this inspection because he knew what to look for. His next stop will be at the cleaning line in the opening room.

REVAMPED CLOTH ROOMS

CONTINUED FROM PAGE 57

Second-quality cloth is separated by carding, spinning, slashing, and weaving defects according to the department at fault. A daily seconds report discussed by management men and department heads shows, for example, spinning seconds of big ends or slubby yarn, slashing seconds of hard size or damp or soft warps, and weaving seconds of misdraws, kinky

OUTSTANDING PERFORMANCE

Patent No. 2,836,439

—equipped with

BARCO TYPE C Rotary JOINTS

- **CHROME PLATING GUARDS AGAINST WEAR**—A standard Barco feature at no extra cost. Minimizes corrosion, friction. Stainless steel spring also standard.
- **RESISTS SEAL RING BREAKAGE**—The spherical seal ring is under compression, not tension, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.
- **WIDE SPACED BEARINGS**—Two, instead of one ... increased bearing area. No lubrication required. Lowest friction.
- **200 P.S.I. STEAM RATING**—Heavy duty service at *no extra cost*. Eight sizes, ½" to 3".

THE above photograph shows a typical installation of sixteen NEW Barco Type C Rotary Joints on a dry can range. They run at speeds up to 100 RPM, handling 50 psi steam, on a three shift per day basis. All are fitted with syphon drain tubes and flexible connections to individual traps.

The big advantage offered by these new joints is ability to give perfect service month after month without service or attention. Dozens of mills have made comparative tests and are now using Barco. PROVE IT YOURSELF. MAKE THE TEST!

Let us send you complete information about Barco's new Type C Rotary Joints for Textile Machine Dryers, Slashers, Dry Cans, Sanforizers. *Catalog 310 on request.*

SEND FOR CATALOG 310

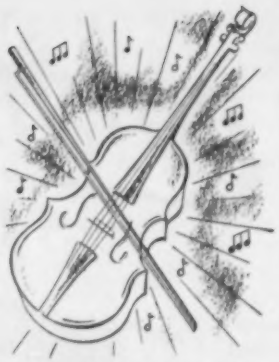
FOUNDED 1910 BARCO PRODUCTS BACKED BY EXPERIENCE

BARCO MANUFACTURING CO.
534C Hough Street, Barrington, Illinois
The Only Truly Complete Line of Flexible Ball, Swivel, Swing and Rotary Joints
In Canada: The Holden Co., Ltd., Montreal

CIRCLE 155 ON READER SERVICE CARD 155

Why Fuss, Fret or Fiddle Around . . .

when you can use



MECHO AIR GUIDERS

There are no production time losses with Mecho. You can adjust it while in operation. Handles lightest fabrics or heavy duck. There's no spoilage . . . Mecho can't spatter and the ingenious selvage finger can't turn a double edge. There are no weights or linkages . . . Mecho's simple design is trouble-free.
What's more, you can depend on Mecho to guide within ⅛ of an inch of the mark, and maintain constant alignment, from 1 to 400 ypm.

You can't chalk up production or show a profit for time spent fussing with fabric guiders that need constant checking, adjusting or repairs.
Mecho Air Guiders speed up fabric processing and pay their own way in a hurry!

Send today for FREE Catalog and details about our complete Guiding Service

THE Guider SPECIALTY COMPANY

427 W. Rock Ave. - New Haven, 15, Conn.
Southern Representatives: McSpadden & Scantland, P.O. Box 3635, Charlotte 3, N. C.

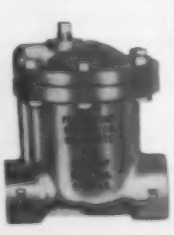
CIRCLE 252 ON READER SERVICE CARD

For Peak Drying Efficiency

The combination delivers a steady flow of hot dry steam to all types of textile dry cans. It assures much faster warm-up, requires no adjustments, and materially reduces downtime.

Syphon Type ROTARY UNION* (above)

A self-aligning and self-adjusting precision mechanical seal which maintains a leakproof connection without mechanical maintenance. Unique syphon support prevents loosening, breaking, or falling off of syphon pipe.



Model 70T UNITRAP* (left)

An inexpensive bucket-type steam trap with a universal pressure range from 0 to 125 lbs. and a capacity up to 1000 lbs. per hour. Stainless steel working parts assure long and trouble free service.

Write for Bulletin 700W and 825W.

*Trade Name - Patented

"WHERE *Good Connections* COUNT"®

PERFECTING SERVICE COMPANY, 332 Atando Ave., Charlotte, N.C.

Baltimore — Buffalo — Camden, N. J. — Chicago — Cleveland — Los Angeles
New York — Providence — Montreal — Toronto

filling, and jerk-backs. With this close follow-up, seconds have been cut greatly.

Graded cloth is placed on a truck that's rolled to the scales for weighing. Then it's baled in a hydraulic press in kraft paper, burlap, and steel bands while it's still on the truck.

Some styles are rerolled by customer order, and this job is done on a rolling machine near the scales.

This position is parallel with the point at which cloth is stitched in the first cloth-room operation. Baled fabric is stored nearby or is shipped directly from an adjoining platform.

Before machines were positioned, floors were sanded and finished and the complete interior of the brick structure was painted. New fluorescent lamps and daylight from numerous windows furnish more-than-adequate lighting. Humidity comes from atomizers, and windows provide plenty of ventilation.

The cloth room of Plant No. 2 was finished last and is much like that of Plant No. 1. The recent installation of 100 additional looms took the old cloth-room area.

The new cloth room is equipped to handle on one shift the fabric from 496 looms all weaving broadcloth. Production of this cloth room is 260,000 yds. per week.

The cloth room has an air-changing system with auxiliary atomizers. Relative humidity is kept at 60 to 65% and temperature is 75 to 78° F.

The materials-handling layout is slightly different from Plant No. 1 but the over-all operating procedure is about the same.

In addition to the same scray-brushing equipment of Plant No. 1, Plant No. 2 has a shearing machine in the line.

Graders' tables at this mill are covered with a green plastic cover that's very effective. By color contrast, it shows the gray fabric well. It's smooth and slick so that fabric slides over it easily, and it does not soil or snag the cloth.

YARN QUALITY

CONTINUED FROM PAGE 60

These careful checks on the timing of each operation are the secret of

Woonsocket's production control, and the system makes it possible to notify customers exactly when to expect the finished product much sooner than would be possible without the system. A special form is sent to the customer six days after the stock is carded, and much telephoning is eliminated.

Spindle Speed Is 4,500 Rpm.

Woonsocket has 16 spinning frames with a total of 3,200 spindles. Gauges are 3 and 3½ ins., and package size ranges from 6 to 9 oz. Spindle speed averages 4,500 rpm., and front rolls run from 110 to 130 rpm. Average time per doff is 6 hrs.

As at carding, frequent tests are made at spinning. The form used for quality-control tests indicates lot number, required strength, color, size, blend, card number, spinning-frame number, breaking strength, weight, average strength variation, average weight, twist gear, main shaft gear, cylinder gear, and turns per inch.

The regular spinning operational report is made on a form that covers lot number, frame number, yarn size, standard twist, drive gear, cylinder gear, twist gear, draft gear, time started and stopped, hours run, and downtime for cleaning and mechanical troubles.

Knitting Test Is Made

After spinning, the yarn is wound, twisted, reeled, or spooled onto whatever type of package is required by the customer. A knitting machine is located in the winding room on which samples are made to check for potential fabric imperfections. Tests and checks made in this department are comparable with those made at carding and spinning.

Woonsocket operates a modern dyehouse where color matching is done under special lighting. Samples of all batches are kept for several years in lightproof boxes to insure consistency in suceeding orders for the same color.

New equipment added recently includes two twisters, one spooler, one skein winder, one winder, two spinning frames, and six cards. Woonsocket produces 30,000 to 40,000 lbs. of yarn per week and employs about 250 operators on three shifts.

1959 COTTON

CONTINUED FROM PAGE 61

1958 in spite of increased production, increased exposure, and increased mechanical harvesting. Staple length held up pretty well over the entire area.

With respect to uniformity of fiber length, all areas producing early-season cotton showed a return to normal. The average uniformity ratio was 80 in 1959, compared with 78 in 1958. Micronaire values were better on the whole, especially in the Mississippi Delta and southeast Missouri. Maturity indexes and tensile-strength averages also were higher in these areas in 1959.

Manufacturing Waste Is Down

In spite of increased mechanical harvesting, manufacturing waste for the Mid-South averaged 7.4% in 1959, down from 8% in 1958. This decrease is the equivalent of one-half grade better cotton.

Cotton ginned in 1959 had the fewest neps since 1955. Yarn break factors showed increases for southeast Missouri and northeast Louisiana. West Tennessee showed a loss in strength that is not explainable unless it is associated with slightly lower uniformity ratio and tensile strength.

Variety planting changed very little from 1958 to 1959 except in eastern Arkansas where there was a tremendous shift to Delfos cotton.

California Cotton

California offered spinners another good cotton crop in 1959. Fiber quality was up in most categories over 1958 and is equal to or better than the five-year period shown in the table.

Yarn break factor increased 120 points over 1958; since 1955 it has increased from 2,580 to 2,740.

Micronaire value, although largely controlled by variety and weather conditions, was right on the nose at 4.5. Range has been from 4.4 to 4.7 in recent years, just what the spinners like.

Yarn appearance in 1959 was up to 102. For the five-year period, yarn appearance averaged C+. Grade in-

PACKED
TO TRAVEL

When you need export packing, think of Charleston where economy, efficiency and speed are the triple stars of service. At State Pier 15 (North Charleston), the South Carolina State Ports Authority and National Export Packing Co. have joined forces to provide complete packing service. Whether you need boxing, baling, bagging or complete piece goods put-up, you can find the service by SHIPPING . . .

Via Charleston SPA

SOUTH CAROLINA
STATE PORTS AUTHORITY
I VENDUE RANGE, CHARLESTON, S C

NEW YORK: 52 BROADWAY
CHICAGO: 327 S. LaSALLE ST.

CIRCLE 157 ON READER SERVICE CARD 157

WOOD'S POWER TRANSMISSION PRODUCT NEWS

REVOLUTIONARY NEW VARIABLE

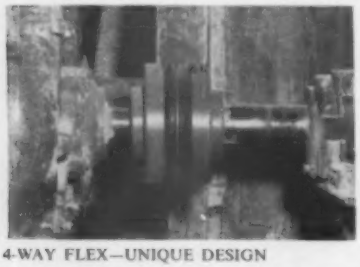
Revolutionary resilient cam follower construction of Wood's new "MCS" motion control, variable speed drives holds constant driven speeds under varying torque loads. Like the "MS," the "MCS" won't freeze or stick. Check oil only once or twice a year. Write for Bulletins 8102, 4101.

CIRCLE 253 ON READER SERVICE CARD

SIMPLE, EFFECTIVE, LOW COST

Wood's Card Drive offers all of the advantages of individual card drives without clutches or gear reducers to maintain. It is simple, smooth-starting and dependable . . . and costs less to buy, less to maintain. Write for Bulletin 6100.

CIRCLE 254 ON READER SERVICE CARD



4-WAY FLEX—UNIQUE DESIGN

Wood's Sure-Flex Couplings absorb 5 to 15 times more shock and vibration than other leading flexible couplings . . . swallow all types and combinations of angular and parallel misalignment, end-float. Simple, no wear, no lubrication. Low cost. Write for Bulletin 5103.

CIRCLE 255 ON READER SERVICE CARD

MPT/360A

Woods

T. B. WOOD'S SONS COMPANY

CHAMBERSBURG, PENNSYLVANIA

ATLANTA • CAMBRIDGE • CHICAGO
CLEVELAND • DALLAS

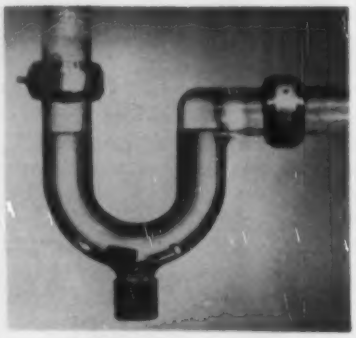
dex and staple length were about average last year despite the fact that three-fourths of the crop was mechanically harvested, a substantial increase over previous pickings.

Neps remained well under control with only 10 per 100 sq. ins. of card web, the same number as for the preceding two years. Picker and card waste is down to 6.8%, the equivalent of SM+ cotton. Actual grade was M+.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 140

Glass Drain-line System



A corrosion-resistant drain-line system based on glass pipe and Teflon-sealed joints is offered by Corning Glass Works, Corning, N. Y.

Lengths of pipe are coupled quickly by stabbing them into the fittings, which are then tightened by turning a single nut.

The glass pipe is available in weights suitable for below-ground and above-ground installations and is guaranteed against corrosion or joint leakage. A series of 30 fittings is also available. **(Circle T-25 on Reader-Service Card)**

Packaged Substations

Nine models of packaged substations that provide extended coverage of the line to more than 90% of all industrial applications have been announced by I-T-E Circuit Breaker Co., Transformer & Rectifier Div., Philadelphia 30, Pa.

The substations, called Tranfo units, are load centers for stepping down primary voltages. They contain both the transformer and its primary protective and secondary distribution devices. This line covers both indoor and outdoor applications.

Units are available in ratings from 45 to 3,000 kva. for stepping down primary voltages from 2.4 through 13.8 kv. to 208/120 through 600 v. **(Circle T-26 on Reader-Service Card)**

Power-Factor Meter

A hook-on polyphase power-factor meter that helps reduce power rates by determining the requirements for power-factor correction equipment has been announced by General Electric Co., Apparatus Sales Div., 1 River Rd., Schenectady 5, N. Y. There's no power interruption because the hook-on jaws of the instrument clamp around the line being tested.

An easy-to-read dial immediately indicates the magnitude of a leading or lagging power factor. The reading is direct, and only one measurement has to be made. No calculator cards or interpolations are required. The instrument is portable, small in size, lightweight, and rugged in construction. **(Circle T-27 on Reader-Service Card)**

Glass Heat Exchangers

Pyrex shell and tube heat exchangers with 60-sq.-ft. capacity have been introduced by Corning Glass Works, Corning, N. Y.

The exchangers are available in standard or regenerative types. The standard unit has a steel shell and is engineered for cooling operations. The regenerative models are jacketed in hard, low-expansion borosilicate glass that is resistant to heat, shock, and corrosion.

Heat recovery capacity of the 60-ft. exchangers averages 213 BTU/hr./ft.^{2}/degree F. in water-to-water tests. **(Circle T-28 on Reader-Service Card)**

Aerodynamic Cleaner

A lint-cleaning unit that can be installed on both the SRRL opener and the SRRL opener-cleaner has been announced by the Southern Utilization Research and Develop-

CONTINUED ON PAGE 160

NOW, THE ULTIMATE IN V-BELT DRIVES

WOOD'S Ultra V DRIVES

SAVE SPACE . . . AS MUCH AS 50%
REDUCE WEIGHT . . . UP TO 27%
CUT COSTS . . . 30% AND MORE

Tremendous savings? You bet they are. And there are more . . . savings on bearings, bases and housings, for instance. Why? Because new, Wood's Ultra-V Drives have exceptional strength and compactness.

New, greatly improved belt materials and new belt construction assure unmatched dimensional stability, amazing strength, greater grip, added support and equalized load for tension members. Belt capacity has been increased radically. Cross sectional areas have been reduced 50% with no loss in belt life. Three Ultra-V Belt cross sections replace 5 of the conventional type, simplifying inventory problems. These compact new belts are oil, heat and exposure resistant and static conducting.

New, high performance, Ultra-V Sheaves have smaller diameters, less width, less weight and tremendous strength. Center distances are reduced. Add to these many advantages the unique features of Wood's Sure-Grip interchangeable bushings. These "easy on—easy off" bushings are *the* most universally used type. Fewer sizes cover a wider bore range. Reverse as well as standard mounting offers maximum flexibility.

Complete details are contained in Bulletin 9102. Write for your copy.

UV/160

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STATIC
CHAPMAN STATIC ELIMINATOR
"Statomatic" MODEL B1
★ GUARANTEED TO REMOVE STATIC AT POINT STATIC BAR IS APPLIED
★ ABSOLUTELY NO SHOCK OR HAZARDS. SAFE TO USE
★ COMPACT, COMPLETE EQUIPMENT
★ SMOOTH, MODERN DESIGN
★ LOW COST, YEARS OF TROUBLE FREE SERVICE
★ EASY TO INSTALL. SIMPLY ATTACH TO YOUR MACHINE & PLUG INTO ANY STANDARD 115 VOLT OUTLET
WRITE FOR FREE BULLETIN 79 SHOWING OUR COMPLETE LINE
Chapman Static Eliminators
Manufactured by
THE PORTLAND COMPANY
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Textile Mills & Finishing Plants
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Pulp & Paper Mills
Surveys & Reports

GREENVILLE,
SOUTH CAROLINA

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 158

ment Div., USDA, New Orleans, La. Called the SRRL aerodynamic cleaner, the unit provides the non-cleaning opener with 15% cleaning capacity and adds about 33% cleaning capacity to the opener-cleaner.

The unit has brushes that also act as fans. They sweep the cotton from revolving cylinders and blow it through ducts to a cleaning area. Trash loosened by the brushes is thrown to one side as the cotton is whipped around a bend in the duct. **(Circle T-29 on Reader-Service Card)**

Chemical Mixer

A blender for mixing 5-gal. containers of powderless etching additives has been introduced by General Scientific Equipment Co., P. O. Box 3038, Philadelphia 50, Pa. **(Circle T-67 on Reader-Service Card)**

Ultrasonic Cleaner

A multipurpose ultrasonic cleaning unit that can handle two different jobs at the time has been announced by Narda Ultrasonics Corp., Westbury, L. I. **(Circle T-68 on Reader-Service Card)**

Inverting Lift Truck

An attachment for lift trucks that will invert a loaded pallet 180° is being offered by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. **(Circle T-69 on Reader-Service Card)**

Vacuum Cleaner

A twin-jet induced-suction cleaner that operates by compressed air is available from Vac-U-Max, 1 Montgomery St., Belleville 9, N. J. **(Circle T-70 on Reader-Service Card)**

SHOWN AT MILAN

CONTINUED FROM PAGE 147

Spanish Shuttleless Loom

The universal Iwer shuttleless loom shown by Maquina Textile del Norte de Espana S.A., Pamplona, Spain, is based on original French patents.

A cone of yarn at the left side of the loom furnishes the filling yarn. From the opposite end of the loom, a moving clip passes through the open warp shed and pulls the filling yarn through the shed on its return motion. Then the clip releases the yarn. More than seven colors of filling can be woven in any order desired. Loom speed is 135 ppm.

Features of the loom are: short travel of the lay motion, small warp shed to reduce strain on the yarn, all natural and continuous-filament and staple man-made fibers can be woven, all kinds of patterns can be woven including dobby and jacquard, and loom efficiency is 99%. **(Circle T-54 on Reader-Service Card)**

CORRECTION

Casablancas High Draft Co. Ltd., Salford 3 (Manchester), England, advises:

"In the review of the Milan Show published in your November issue you state on page 59 that four drafting systems can be applied to the Platt MR4 Ring Frame. The systems are described as being all capable of dealing with fibre lengths up to 2½ ins. or more, except the Casablancas system, which is listed as 'GX for staples up to 1¾ ins.'

"The Casablancas ring frame drafting system exhibited and mentioned by Messrs. Platt was, in fact, the GX2, our current top arm system. . . . [However,] the GX2 drafts all staples up to 3 ins."

Hosiery-Knitting Machine

An automatic circular-knitting machine for women's seamless hosiery was demonstrated by Moretta, Varese, Italy. U. S. and Canadian agent is Staroba Industrial Research Co., Toronto, Ont.

The twin-feed machine, Model D.R. 2, knits 3¼-in.-diameter hosiery with 360, 400, or 472 needles.

The machine knits stockings in plain fabric, micromesh, and honeycomb with two threads. There's a large choice of pyramidal reinforcements by needle selection; splicing of the sole and heel is made on both feeds.

Automatic welt is made on two feeds; underwelt is knitted on two feeds with draw-stitch effects; float mesh is knitted on one feed. **(Circle T-55 on Reader-Service Card)**

Multiprocess Machine

Printing, dyeing, color-fixing, and finishing operations can be performed on a machine shown by Artos-Maschinenbau, Hamburg 33, Germany.

The printing is done by a printing roller that carries the dye made up into the desired patterns and colors by a special process. Conventional one- or two-color printing is also possible.

Dyeing, finishing, and laminating operations are carried out in the basic machine, which has two sets of three-roll pads, each with a box to carry color or finish. **(Circle T-56 on Reader-Service Card)**

Wool Spinning Frame

A carded-wool and cotton-waste spinning frame based on the principle of cotton spinning was shown by A. Carnitti & Co., Oggiono (Como), Italy. The frame has a stationary spindle rail, maintains a constant balloon, and eliminates the use of false twist.

As soon as the bobbin is full, the thread board and antiballooning mechanism are stopped in their uppermost position while the ring rail returns to its starting position. The thread board and antiballooning device can be raised so that the bobbin is left free for doffing.

In the single-drive model, the drafting element is fed from a jack spool from which the roving leads toward the two sections of the machine in an alternate pattern. In the independent section models, two lines of jack spools are required. A three-roll double-apron drafting system with a top-pressure arm is used. **(Circle T-57 on Reader-Service Card)**

Napper

A napping machine that is adaptable to a wide variety of fabrics was shown by Tomlinsons (Rochdale) Ltd., Oldham Rd., Rochdale, England.

The napper has 36 rollers and features the mechanically operated Auto-Zero energy-control system. P.I.V. gearing is used to produce or reproduce any wanted set of napping conditions. In addition, the machine is available with cone-pulley or expanding-pulley speed-variation systems. **(Circle T-58 on Reader-Service Card)**

Electronic-Control Warpers

A complete range of high-speed direct warpers for warp knitting, narrow-fabrics looms, and broad looms was shown by Crowther Ltd., Thurmaston, Leicester, England. The machines have push-button electronic controls, electromagnetic brakes, low streamlined construction, predetermined yardage counters, and pressure gauges. The warpers are suitable for both coarse and fine yarns.

Electronic controls insure constant speed control and evenly tensioned beams within ±1% from empty to full beams. A controlled start without jerking is possible. A positive spindle drive eliminates damaged yarn.

For warp knitting, warpers with the following beam widths are supplied: 21½ ins., 42 ins., and 84 ins.

Narrow-fabric beams up to 21½ ins. wide are possible.

For broad looms, beam width up to 84 ins. is furnished. But the standard width is for 54-in. beams. This machine warps beams of 36-in. diameter at 800 yds. per min.

Creels are made for any type of yarn and yarn package, and quick re-creeling devices are provided for short-run warps. Creels can be supplied with automatic motor-driven traverse for both sectional or stationary warpers. Tension devices are very accurate.

For magazine packages for long

CONTINUED ON PAGE 168

Out Goes
LINT · FLY
TRASH
from your
SPINNING FRAMES
and ROVING FRAMES
Quickly • Economically

by using
M·B AMOSKEAG PNEUMATIC ROLL PICKER
New, Improved MODEL 59
A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.
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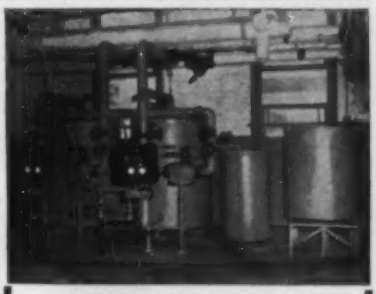
M·B PRODUCTS
46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN
CIRCLE 257 ON READER SERVICE CARD



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producing
CLEAR IRON-FREE 100% SOFT WATER
Often For As Little As 1¢ per 1000 Gallons
Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?
HUNGERFORD & TERRY, Inc.
Clayton 9 New Jersey

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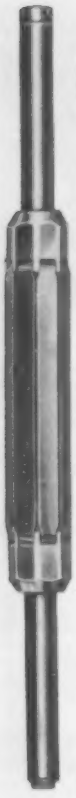

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The pneumatic Aero-Shaft holds any core firmly providing uniform tension that allows faster roll speeds.

Aero-Shaft eliminates core damage . . . deflates instantly for split-second removal from used to new core.

Double expanding rib section available for web widths over 40". Write today. Start saving with Aero-Shaft!

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318 Cliff Lane, Cliffside Park, N. J.
manufacturers of infra-red gas burners

NEWS ABOUT SUPPLIERS

ALLIED CHEMICAL CORP., New York, N. Y.—Has named S. A. Cooper assistant director of the Fiber Marketing Dept. F. W. Noechel has been named technical service manager for the department. The Sales Dept., Solvay Process Div., has named F. P. Boehm and C. E. Varn assistant directors of sales with headquarters in New York . . . **AMERICAN VISCOSE CORP.,** Philadelphia, Pa.—Has named G. G. Whytlaw director of textile development for AviSun Corp., an equally owned affiliate of American Viscose and Sun Oil Co. . . . **ATLAS POWDER CO.,** Wilmington, Del.— Has named William Spier, Jr. chemical salesman in Virginia and the Carolinas, with headquarters in Charlotte, N. C.

BORDEN CHEMICAL CO., New York, N. Y.—Has announced initial production of acrylic emulsions in a new manufacturing plant at Demopolis, Ala. M. S. LeTourneau has been promoted to Eastern-district sales manager . . . **CARBIC-HOECHST CORP.,** New York, N. Y.—Has announced that J. G. Nissl has retired as New York sales manager. . . . **CELANESE CORP. OF AMERICA,** New York, N. Y.—Has announced that Celanese Fibers Co. has named R. P. Wilson manager of polyester-fiber sales. Celanese Fibers Co. has promoted R. H. Powers to assistant general sales manager. R. J. Jewell has been promoted to manager of sales development. L. G. Lovin, Jr., has been promoted to manager of acetate and Arnel filament yarns.

WILLIAM H. MILLER (left) has been named national sales-service manager for Wicaloids for Wica Chemicals, Inc., Charlotte, N. C. EDWARD A. O'NEAL, JR., (center) president of Chemstrand Corp., Decatur, Ala., has been elected chairman of the Man-Made Fiber Producers Association, Inc. C. HARRY PHILLIPS (right) has been named business manager of Watson Engineers, Greensboro, N. C.

CIBA CO., INC., Fair Lawn, N. J.—Has established a new Pigments Div. The division will handle organic pigments, pigment dispersions, and soluble dyes. . . . **CLINTON CORN PROCESSING CO.,** Clinton, Iowa.—Has named D. R. Reed district manager in Chicago, Ill. . . . **CORN PRODUCTS CO., CORN PRODUCTS SALES DIV.,** New York, N. Y.—Has named five new vice presidents: R. W. Bond, market planning; D. K. Brickley, sales services; J. J. Jones, refined and processed oils; J. M. Krno, sales promotion and development; and H. M. Mays, feed and by-product sales. . . . **DAWBARN BROS., INC.,** Waynesboro, Va.—Has completed its second major expansion in the last four years. Most of the new plant area will be used for the manufacture of polypropylene fibers. . . . **DIAMOND ALKALI CO.,** Cleveland, Ohio—Has promoted M. F. Wilkerson to sales manager of the Chlorinated Products Div.

DODGE MFG. CORP., Mishawaka, Ind.—Has named T. P. Grace sales representative for the borough of Manhattan, N. Y. . . . **DOW CHEMICAL CO.,** Midland, Mich.—Has elected Macauley Whiting, general manager of the company's Midland Div., a member of the board of directors. W. H. Oliver is representing the company's textile-fibers department in the Detroit, Mich., automotive market. J. P. Hickox and M. B. Callen have joined the textile-fibers sales group. . . . **DOW CORNING CORP.,** Midland, Mich.—Has promoted C. E. Gibson to regional sales supervisor for the Southeastern

states. . . . **E. I. DU PONT DE NEMOURS & CO., INC.,** Wilmington, Del.—Has announced that it has entered into a one-year agreement with Binks Mfg. Co., Chicago, Ill., and Greenville Steel & Foundry Co., Greenville, S. C., to develop equipment and processes required to facilitate its Unifog spray process for applying finishing agents to textiles. R. R. Smith has been named director of sales for the company's Film Dept.

EASTMAN CHEMICAL PRODUCTS, INC., Kingsport, Tenn.—Has named E. H. Hawkins, Jr., and Simon Hobbs, Jr., service representatives in the Fibers Sales Service Dept., with headquarters in Kingsport. . . .**FAFNIR BEARING CO.,** New Britain, Conn.—Is doubling the size of its Newington, Conn., plant. Completion is scheduled for late this fall. . . . **FAULTLESS CASTER CORP.,** Evansville, Ind.—Has transferred F. Gordon Doerr to New York, N. Y. as Eastern district sales manager. . . . **FIDELITY MACHINE CO., INC.,** Philadelphia, Pa.—Has named P. A. Mahler and Robert Peel vice presidents. . . . **FOSTER MACHINE CO.,** Westfield, Mass.—Has been named exclusive sales representatives in the United States for textile products manufactured by Lindly & Co., Inc., Mineola, L. I.

J. O. ROSS ENGINEERING DIV., MIDLAND-ROSS CORP., New York, N. Y, has opened this new office building in Webers Industrial Park Area of Mt Prospect, Ill.

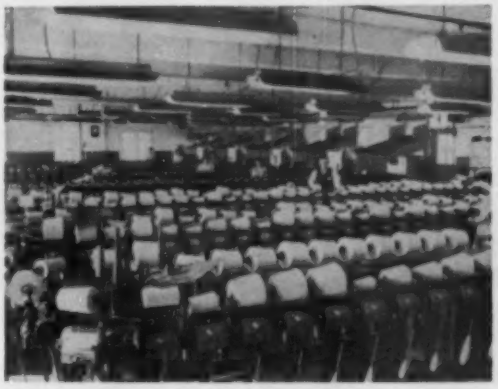
GATES RUBBER CO., Denver, Colo.—Has promoted C. R. Spencer to field-sales manager. The company has opened its $500,000 manufacturing plant in Toluca, Mex. It is manufacturing V-belts for the automotive and industrial markets in Mexico. . . . **GENERAL ANILINE & FILM CORP.,** New York, N. Y.—Has announced that the Dyestuff & Chemical Div. has formed a separate Pigment Dept. The Antara Chemicals Div. has named A. K. May manager for surfactants and related chemicals and E. S. Underwood manager for heavy chemicals. A. W. Purdy has been promoted to Eastern regional manager for the division, and J. P. Miller replaces Mr. Purdy as sales engineer for the Philadelphia, Pa., area. . . . **GENERAL ELECTRIC CO., SILICONE PRODUCTS DEPT.,** Waterford, N. Y.—Has named G. E. Shepherd manager in charge of a newly formed sales district in New England with headquarters in Boston, Mass.

B. F. GOODRICH CHEMICAL CO., Cleveland, Ohio—Has named Jean F. Malone sales-development manager of plastic materials. . . . **HERCULES POWDER CO.,** Wilmington, Del.—Has created a new International Dept. It will include the work of the present Export Dept. The company has also announced that the Virginia Cellulose Dept. has formed a new sales office in Charlotte, N. C. D. H. Sheffield has been named general manager of the Synthetics Dept. . . . **HEYDEN NEWPORT CHEMICAL CORP.,** New York, N. Y.—Has started an expansion program at its Fords, N. J., plant, that will double current production of derivatives of ortho- and para-chlorotoluenes. . . . **R. E. L. HOLT, JR. & ASSOCIATES, INC.,** Greensboro, N. C.—Has been reorganized following the death of R. E. L. Holt, Jr.; and the name has been changed to Holt Associates,

ABBOTT MACHINE CO., Inc.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.



AUTOMATIC CONE OR TUBE WINDERS—for winding all types of spun yarns on cones or tubes for Warping, Dyeing, Twisting, Quilling, Knitting or Sales Packages.

SPECIAL WINDING UNITS FOR KNITTING CONES—include a new slub catcher and a new waxing attachment, which uses standard size commercial wax disks.

LARGE PACKAGES—can be wound up to 11½ inches in diameter for use on shuttleless looms and looms that require a cone supply.

MODEL I AUTOMATIC QUILLER—for coarse count cotton, worsted, wool and other spun yarns, delivers full loom bobbins automatically into boxes, onto pinboards, on wide belt conveyor for inspection of bobbins, or into specially made magazines for automatic loom feeder.

MODEL II HIGH SPEED AUTOMATIC QUILLER (10,000 R.P.M.)—for winding fine count cotton and synthetic yarns of either spun or filament construction.

Also delivers full loom bobbins automatically into boxes, onto pinboards or wide belt conveyor for inspection of bobbins.

Under some conditions one operator can run two or three machines and produce upwards of 2500 full loom bobbins per hour.

ABBOTT FULLY AUTOMATIC RADIAL QUILLER, MODEL II—especially designed for flexibility, is very versatile and particularly well adapted for winding numerous small lots of filling.

Winds coarse or fine count cotton, worsted, wool, rubber and various synthetic yarns, either spun or filament.

Automatic delivery of full loom bobbins onto pinboards, wide belt conveyor for inspection of bobbins, into baskets or other type containers.

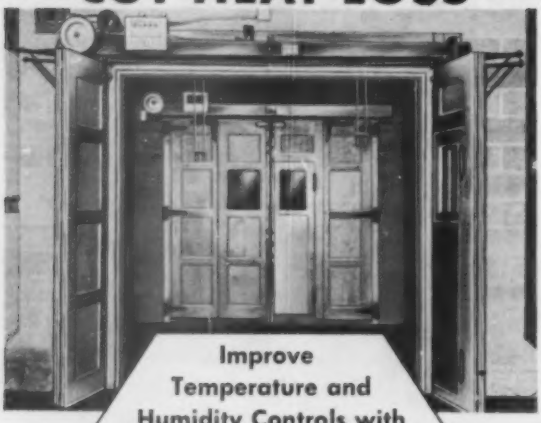
Automatic delivery of bobbins can also be supplied whereby full loom bobbins from the individual cones and spindles are delivered into separate containers, which is highly desirable for loom finish yarns and the like.

The Radial Quiller can also be equipped with measured yardage attachments to give accurate, uniform bobbin yardage, as required for two-shuttle looms.

A wide range of spindle speeds for approximately 1000 R.P.M. to 10,000 R.P.M. is obtainable.

One operator can run several machines and thus produce up to 2000 loom bobbins, or more, per hour.

CUT HEAT LOSS



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Available with your choice of AIR OR ELECTRIC MOTIVE POWER. Before you buy **any** door, write for Free catalog.

CLARK DOOR COMPANY, INC (since 1878)
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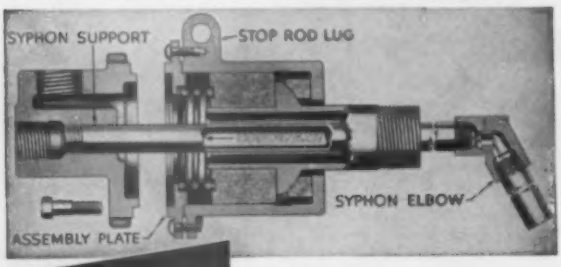
TRY THIS on your Dry Cans and 30" Slasher Cylinders

We'll gladly furnish a pair of these units for 90-day obligation-free trial in your mill. The Type SB2P is self-supporting, completely packless, needs no lubrication or adjustment. The Johnson Syphon Elbow permits the use of two straight pipes instead of an unwieldy curved syphon pipe, is hinged to pass right through the joint.



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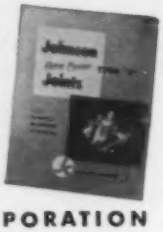
Shows self-supporting Johnson Joints for all needs . . . on print cans, calenders, compressive shrinkage ranges, big 5' and 7' cotton slashers, dry cans, etc.



THE JOHNSON CORPORATION
814 Wood St., Three Rivers, Mich.

164 CIRCLE 164 ON READER SERVICE CARD

NEWS ABOUT SUPPLIERS Continued

Inc. J. G. Skinner has been named president. . . . **HOOKER CHEMICAL CORP.,** Niagara Falls, N. Y.—Has announced that the Phosphorus Div. is building a potassium-phosphate plant in Jeffersonville, Ind. It is scheduled for operation by the middle of the year.

MINNESOTA MINING & MFG. CO., St. Paul, Minn., is building this $10-million, 14-story administration building at its research center just east of St. Paul.

INDUSTRIAL RAYON CORP., Cleveland, Ohio—Has approved a plan for the combination of its company and Texas Butadiene & Chemical Corp., Houston, Tex., subject to the approval of the companies' stockholders. . . . **LASSITER CORP.,** New York, N. Y.—Has acquired Print-A-Tube Co., Paterson, N. J., and will operate it as a division. . . . **LEESONA CORP.,** Providence, R. I.—Has named H. E. Robbins to its staff as a research engineer. J. A. Nasmith has been appointed joint managing director in charge of sales, Leesona-Holt Ltd., European subsidiary of Leesona. . . . **MCLEAN TRUCKING CO.,** Winston-Salem, N. C.—Has bought Hayes Freight Lines, Inc. . . . **MOUNT HOPE MACHINERY CO.,** Taunton, Mass. —Has named H. J. Akerblom, Joliette, P. Q., Canadian representative in the textile and plastic fields. . . . **NOPCO CHEMICAL CO.,** Newark, N. J.—Has announced that its subsidiary, Metasap Chemical Co., is now a Nopco Division.

PENNSALT CHEMICALS CORP., Philadelphia, Pa.—Has named A. H. Clem to the newly created office of vice president of marketing. The company has also bought a site for a new $6-million technical center in the King of Prussia Park on the Pennsylvania Turnpike. The company is also investing about $500,000 in a new blending, packaging, and warehousing plant at Atlanta, Ga. . . . **PUTNAM CHEMICAL CORP.,** Beacon, N. Y.—Has named J. L. Wyman Southern sales manager, with headquarters in Charlotte, N. C. . . . **QUALITEX, N. V.,** Enschede, Holland—Has named W. A. Thomason, Jr., exclusive sales agent in the United States. . . . **ROHM & HAAS CO.,** Philadelphia, Pa.—Has elected Dr. Ralph Conner chairman of the board and Dr. F. O. Haas president and chairman of the executive committee of the board, following the retirement of the late Otto Haas.

TEXAS INSTRUMENTS, INC., METALS & CONTROLS DIV., Attleboro, Mass.—Is moving its Spencer Products Group to Attleboro, Mass., from its Burbank, Calif., location. . . . **TEXIZE CHEMICALS, INC.,** Greenville, S. C.—Has bought the capital stock of Industrial Products, Inc. . . . **TEXTILE SHOPS, INC.,** Spartanburg, S. C.—Has promoted T. L. Shealy to general manager. . . . **TORRINGTON CO.,** Torrington, Conn.—Has named four district engineers to regional sales offices: Richard Finn, Tulsa, Okla.; H. M. Mauel, Eastchester, N. Y.; R. F. Deacon, Pittsburgh, Pa.; and J. W. Stout, Philadelphia, Pa. . . . **UNION CARBIDE CORP., UNION CARBIDE CHEMICALS CO. DIV.,** New York, N. Y.—Has made C. W. Brown responsible for Dynel sales in the Southern district, with headquarters in Charlotte, N. C. H. S. Porter will handle Dynel sales in New England with headquarters in Needham Heights, Mass.

NEWS ABOUT MEN

Herbert Binder has been named vice president and general sales manager of all the fabric divisions of Wamsutta Mills, New Bedford, Mass.

J. Kenneth Brown has been named assistant manager of Union Bleachery, Cone Mills Corp., Greenville, S. C.

A. B. Carwile, Jr., has been promoted to group technical-service coordinator for Abbeville Mills Corp., Worsted Div., Laurens and Pendleton, S. C.

J. E. Cobb has been appointed manager of Gastonia Weaving Co., Gastonia, N. C. For the past four years he has been associated with Cramerton Mills, Cramerton, N. C.

Frederic A. Cornell has been named manager of the spinning and weaving division of the Manchester plant of Arms Textile Mfg. Corp., Manchester, N. H.

James G. Daly has been appointed assistant purchasing agent for American Fabrics Co., Bridgeport, Conn.

John R. Davis has been promoted to head of technical services for the Craft Div. of Pacific Mills, Greensboro, N. C. He had been superintendent of Pacific Mills' Oxford Plant, Oxford, N. C.

John Dempsey has resigned as vice president of Collins & Aikman Corp., New York, N. Y.

Roy A. Faires has been named superintendent of Carolina Mills' Plant No. 5, Lincolnton, N. C.

Eugene Feinerman has been elected vice president of M. Lowenstein & Sons, Inc., New York, N. Y. Mr. Feinerman is merchandising supervisor of the Versafab, KJ, and "T" Depts. for the women's-wear division and previously had been New York sales manager.

George E. Fogle, Jr., has been elected vice president of Lowell Bleachery South, Griffin, Ga.

George W. Marshall has been named director of styling of Roxbury Carpet Co., Saxonville, Mass. He will have general supervision of all styling activities at the company's three mills in Saxonville and Worcester, Mass., and Chattanooga, Tenn.

J. P. Foster has been placed in charge of Fieldcrest Mills' new bedspread-finishing mill, Spray, N. C.

Dr. Kenneth R. Fox has been elected a director of Troy Blanket Mills, Troy, N. H.

T. E. Gibbons has been transferred to the Spray, N. C., mill of Fieldcrest Mills, Inc., as a quality-control engineer.

Arthur Gross has been elected a vice president of M. Lowenstein & Sons, Inc., New York, N. Y. Mr. Gross had been appointed general sales manager of the company last October succeeding S. L. Hagan, who is now serving as an executive consultant.

James B. Hawkins has joined Callaway Mills Co., Inc., LaGrange, Ga., as design engineer in the mechanical laboratory of the research and development division.

S. Lewis Hutcheson, president of Peerless Woolen Mills, a division of Burlington Industries, Inc., Tifton and Rossville, Ga., has retired from

Taylor-Stiles
MAKES A CUTTER
for
Every Cutting Need

for THREAD WASTE, CONTINUOUS FILAMENT
GLASS YARN & FIBER, FLOCKS & STAPLE

This Taylor-Stiles Cutter will cut Orlon and other synthetic waste into lengths from 1" up to 24", hour after hour, week in and week out, with absolute accuracy and minimum maintenance.

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Please send me a copy of the folders checked below:
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☐ 215 Bale Breakers for Cotton Linters, Jute Cuttings, etc.

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CIRCLE 165 ON READER SERVICE CARD 165

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Engineers

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OTHER INDUSTRIAL PLANTS

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ELECTRICAL, STEAM, DIESEL
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- WORK LOAD STUDIES
- MANAGEMENT PROBLEMS
- SPECIAL REPORTS

RALPH E. LOPER CO.
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Specializing in Textiles Since 1914
CIRCLE 262 ON READER SERVICE CARD

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It will help us to keep your copies of TEXTILE WORLD coming to you each month if you will promptly advise us of any change of address.

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Please change the address of my Textile World subscription.

Name .....
Old Address .....
New Address .....
New Company Connection .....
New Title or Position .....

NEWS ABOUT MEN Continued

William R. Phillips has been named vice president of Sidney Blumenthal & Co., Rocky Mount, N. C. He had been merchandising assistant of the president.

James P. Halsey has been placed in charge of gray-goods sales and contract finishing at Russell Mfg. Co., Alexander City, Ala.

active management but is remaining with the company in an advisory capacity.

Joe Inscoe has been named supervisor of yarn manufacturing for Carolina Mills, Inc., Newton, N. C.

H. E. Knox has been promoted from superintendent to executive vice president of Mission Valley Mills, Inc., New Braunfels, Tex.

John Land has been elected president of Textiles, Inc., Gastonia, N. C.

John C. Leathem has been named a member of the board of directors of Abney Mills, Greenwood, S. C.

Frank W. Long has been promoted to assistant manager of Wayne Mfg. Co., Waynesboro, Miss.

Horace C. Jones has been elected vice president and treasurer of James Lees & Sons Co., Bridgeport, Pa.

Harold Mason has been elected a vice president of Woodside Mills, Inc., Greenville, S. C.

Kenneth Matheson has resigned as staff industrial engineer at Mooresville Mills, Div. of Burlington Industries, Greensboro, N. C., to become general manager of Sunbury Textile Mills, Inc., Sunbury, Pa. His successor at Mooresville Mills is Dennis Johnson.

T. E. Markthaler has retired from active duties at Russell Mfg. Co., Alexander City, Ala. He had been with the company for 18 years.

R. H. McComb has been named production manager at Rudisill Spinning Mills, Lincolnton, N. C.

Allyn B. McIntyre has retired as vice president in charge of advertising for Pepperell Mfg. Co, Boston, Mass.

Marion Morrison has retired as superintendent of Ridgeview Hosiery Mills, Newton, N. C.

Arthur Nalley has been promoted to assistant overseer of carding at Victor Mill, Greer, S. C.

Allen J. Nelson has been named assistant purchasing agent for raw materials for Fieldcrest Mills, Inc., Spray, N. C.

Henry G. Nichols has retired as executive vice president of Cone Mills, Inc., New York, N. Y. He is continuing as a member of the board of directors.

Raymond G. Ownings has joined Bangor Mills, Inc., Bangor, Pa., and will make his headquarters in Pen Argyl, Pa.

Wilson Patterson has been named agent in charge of the Tallassee Mills Div. of Mount Vernon Mills, Inc, Tallassee, Ala., succeeding B G. Stumberg, who has retired.

Walter L. Patton has been

elected an assistant vice president of Alice Mfg. Co., Easley, S. C.

Al Probstein has rejoined the Stehli Silk Div. of Schwarzenbach Huber Co., New York, N. Y., as manager of the Printed Fabrics Dept. He will be in charge of merchandising and styling of the fabrics.

David W. Quinn has joined the Vulcan Rubber Products Div. of Reeves Bros., Inc., New York, N. Y., as manager of the company's Grace plant near Rutherfordton, N. C.

Linton C. Reynolds has been appointed technical director of textile production at Riegel Textile Corp., Ware Shoals, S. C.

George H. Smith has been named plant manager of the Whitney Plant of Indian Head Mills, Inc., Whitney, S. C.

William F. Sullivan has been elected a director of Troy Blanket Mills, Troy, N. H.

Donald A. Tesch has been elected a member of the board of directors of Schlegel Mfg. Co., Rochester, N. Y.

Raymond J. Toher has been appointed a technical superintendent of Drayton Mills, Spartansburg, S. C.

J. Edward Usry has joined Proximity Print Works, Cone Mills Corp, Greensboro, N.C., as assistant plant manager. He was at Union Bleachery, Greenville, S. C.

Textile World

OBITUARY

James Rulon Baron, 56, associated with his sons in Baron Woolen Mills, Brigham City, Utah.

Alton M. Cameron, former president and general manager of Vass Cotton Mills, Vass, N. C.

Summey M. Cauble, 57, superintendent of Acme Spinning Co., Belmont, N. C.

Charles William Fox, Sr., 39, president of G & F Hosiery Co., Asheville, N. C.

Otto Haas, 87, founder and honorary chairman of the board of Rohm & Haas Co., Philadelphia, Pa.

Robert E. Lee Holt, Jr., 50, founder and president of R. E. L. Holt Associates, Greensboro, N. C.

Raymond W. Jacoby, 70, a well-known textile chemist and a former president of AATCC.

John R. Millar, 72, founder of National Automotive Fibres, Inc., Detroit, Mich.

Henry F. Phelps, 80, retired manager of Crompton & Knowles Corp., Philadelphia, Pa.

D. S. Rollins, 78, president of Brampton Woolen Mill, Newport, N. H.

Courtland M. Scruton, 67, retired manager of Utica Knitting Mills, Anniston, Ala.

Harold R. Turner, 62, vice president of J. P. Stevens & Co., Inc., Greenville, S. C.

Crayton Van Patton, 38, operations superintendent at Carlisle Finishing Co., Union, S. C.

Kenneth Byrd White, Sr., 69, president of Falls Co., Norwich, Conn., and of White Bros., Inc., Winchendon, Conn.

Caleb Edward Wisner, 86, retired superintendent of Scottdale Mills, Decatur, Ga.

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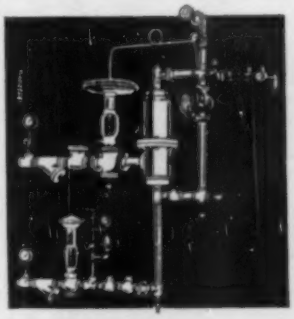

8 SIZES — 500 to 50,000 GALS. PER HOUR

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Volume adjustable from 5% to full rated capacity. Water temperature accurately controlled at any setting, with 20-second reaction to desired up-and-down changes. Operates on high or low-pressure steam.

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PICK MANUFACTURING CO., West Bend, Wis.

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DOUBLE RUB, FOUR BANK TAPE CONDENSER

Built in 48", 60", 72" widths for adaptation to all carding machines. Write for information.

Duesberg-Bosson of America, Inc.

Main Street Jefferson, Mass. P.O. Box 25

CIRCLE 167 ON READER SERVICE CARD

CONTINUED FROM PAGE 161

runs of uniform yarn, a Minimag creel that reduces space requirements 50% is used.

Another creel is on wheels so that each section can be removed and replaced with a new fully creeled section when yarn cones become empty. **(Circle T-59 on Reader-Service Card)**

Woolen Spinning Frame

A woolen spinning frame with a variable-speed motor and spinning regulator that reduces tension and produces more even yarn was shown by Houget Ateliers S.A., Verviers, Belgium. The frame spins carded wool, cotton waste, man-made fiber, hair, and asbestos.

Compared with a mule frame, production per spindle is double and less than one-third the floor space is required.

Twist is adjusted by changing spindle speed with a motor key, and speed of the rolls is controlled by turning the variator handwheel. False twist, usually held at 50% of the real twist, is seldom changed.

The spinning regulator, driven by the ring rail, moves brushes on the motor so that speed is varied in accordance with the position of the ring rail. **(Circle T-60 on Reader-Service Card)**

Screen-Printing Machine

An improved magnetic-hydraulic drive was featured in a screen printing machine demonstrated by Fritz Buser Ltd. Engineering Works, Wiler/EBT, Switzerland.

The machine is available in widths of 44 to 90 ins. and will print in repeats of 20 to 118 ins. Accuracy of repeat is 1/128 in. **(Circle T-61 on Reader-Service Card)**

Roving Frame

An improved Platt MS2 roving frame was demonstrated by Atkinson, Haserick & Co., Inc., Framingham, Mass. Chief change is a new drafting arrangement with a three-over-three roll system and a draft range of 4 to 12. Other drafting systems are available.

Rolls can be adjusted to handle fiber from ¾ to 4 ins. long, and package size can be up to 12x7 ins. Flyer pressers have one hole for normal winding or two holes for either normal or high-tension winding. The inside of the flyer leg is electrolytically polished in the same manner as the outside surfaces.

Bobbin and spindle drives are designed to reduce noise. Chain drives and helical cut gears are used. Main drive is by a built-in motor with integral electromagnetic clutch. Fibre wheels in the gearing chain reduce noise. The one-shot centralized-pressure lubrication system has transparent nylon tubing that permits visual inspection of the oil flow. **(Circle T-62 on Reader-Service Card)**

Narrow Spinning Frame

The Model K cotton spinning frame built by its licensee, Industrie Werke, Karlsruhe, Germany, was shown by Whitin Machine Works, Whitinsville, Mass.

Features include 27-in. over-all width, covered individual-spindle drive from side drive shafts, straight-line spinning, traverses up to 12 ins., balloon control rings, and a special top arm to meet European drafting requirements.

Available in either 2½- or 2-in. gauge, the machines normally have 312 or 264 spindles in increments of 24 spindles. Pneumatic waste-removal unit is integrated into the machine design with a special arrangement to disperse motor heat.

Spindle speed of the machine shown at Milan was 13,350 rpm., front-roll speed 136 rpm., draft 40, and twist 31 tpi. It was spinning 60s yarn from double-creeled 3.00-hk. roving made from 1¼-in. Middling cotton. **(Circle T-63 on Reader-Service Card)**

Rayon-Yarn Slasher

A rayon-yarn slasher in which the warp is not dipped in the size but a wax-like substance is applied to the warp by electrically heated rolls was shown by Ruti Machinery Works Ltd., Ruti (Zurich), Switzerland, and is to be sold in the U. S. by H. J. Theiler Corp., Whitinsville, Mass. The slasher operates without: water, a dryer, or a size-cooking range.

A sectional drive with magnetic-amplifier control enables the yarn tension in the wet and dry sections, and the degree of dryness, to be maintained with great accuracy. All important operations are controlled electropneumatically.

A switchboard that contains instruments for indicating speed, pressure, and warp tension is operated by push buttons. Speed is approximately 55 yds. per min. **(Circle T-64 on Reader-Service Card)**

Rotating Flat Card

A flatless cotton card developed in Italy by Brevetto Carminati was shown by three exhibitors: Platt Freres of France, S. A. Serra of Spain, and Zinser of Germany.

In place of conventional flats, the card has 18 small rolls clothed with metallic clothing that work against the cylinder and can be adjusted to 0.002 in. The card is about 4 ft. high.

No flat waste is produced. Short fibers and impurities are taken out by the mote knives, lickerins, and cylinder grids. Production ranges from 4.4 to 11 lbs. per hr.

Other features include an improved feed table, brass lickerin and drum grids, spring pressure on the feed roll, a helical-gear drive on the cylinder, and a safety device that keeps foreign matter out of the machine. **(Circle T-65 on Reader-Service Card)**

Worsted Spinning Frame

A spinning frame for worsted and man-made fibers was among the several machines shown by A. Carniti & Co., Oggiono (Como), Italy.

The worsted frame has a stationary spindle rail and produces a constant balloon. Yarn twist extends all the way to the nip of the front rolls so that higher speeds can be run. Uniformity is maintained by the constant size of the balloon.

Drafting system has four rolls, a long double apron, and a top weighting arm. First two lines of top rolls have ball bearings. There are two drafting zones that make it possible to draft from 12 to 60. Supply package can be either flat sliver from the French system finisher or roving from the cotton system.

Other advantages include high traverse, large packages, suction cleaning, instant reversal of spindle direction, and ball-bearing-equipped parts. Frame is 29 ins. wide. **(Circle T-66 on Reader-Service Card)**

UNUSUAL OPPORTUNITY

for aggressive man to make permanent career starting as

TEXTILE MACHINERY TECHNICIAN

with progressive, medium-size machinery manufacturer. Extensive travel from N.Y.C. office in U. S. and Canada to trouble-shoot as well as supervise installations.

College graduate, between 25 and 30 preferred, mechanical inclination essential. Min. 3 mos. mill training period. Unusual benefits for right man. Confidential. Send Resume.

P-3417—Textile World
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

BOSS DYER

Knitted piece goods. Experienced on all fibres. Excellent opportunity.

WARREN FABRICS CO. INC.
West Warren, Mass.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

POSITIONS VACANT

Wanted—Dyer. Must be thoroughly experienced in beck dyeing of piece goods containing blends of Viscose, Acetate, Nylon, Dacron. All correspondence will be kept strictly confidential. P-3148, Textile World.

M. E. or I. E. or man with equivalent experience required in AAA 1 Mid-West Textile Specialties Corporation. Woven Textile experience desired but man with diversified background will be considered. Age 30 to 45. Salary open. Submit resume. P-3315, Textile World.

Export — Experienced textile machinery. Fluent German or French. P-3559, Textile World.

POSITIONS WANTED

Woven Labels. Desire responsible position in woven label concern. Over 30 years in labels, trimmings, as foreman and maintenance. Presently employed. PW-3477, Textile World.

Woolens & Worsteds Designer available Textile School Graduate, 24 years experience in Manufacturing of Ladies & Mens Wear to: PW-3539, Textile World.

Novelty Yarn Manufacturing Technician. Thoroughly experienced, seeks responsible position. Reply: PW-3543, Textile World.

Foreign Assignment Wanted: Qualified Finisher & Bleacher with over seas experience. 39 yrs. old, in excellent health. Capable of setting up departments and training personnel. PW-3415, Textile World.

Manager, Superintendent or equivalent. Broad experience in combed cottons and all synthetics, both sales yarns and weaving on fancies both narrow and broad looms. Can produce quality at low cost. Presently employed. Will consider foreign connections. PW-3517, Textile World.

Textile Stylist:—Upholstery—Drapery & Pile Fabrics. Can write complete specifications, Designing, Card cutting & Costs for Jacquard, Shaft & Dobby looms. PW-3565, Textile World.

Narrow Fabric Overseer 15 years experience. All tapes. Woven cord jipper—Needle or Shuttle. PW-3572, Textile World.

SELLING OPPORTUNITY WANTED

Semi-retired textile manufacturer has mid-town New York office. Will represent textile or allied lines locally selling, display or any local problems. Commission or fee basis only. RA-3558, Textile World.

ADDITIONAL EMPLOYMENT OPPORTUNITIES on following page

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(Classified Advertising)

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$1.50 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Positions Wanted take one-half of above rate.

Box Numbers in care of our New York, Chicago & San Francisco offices count as one additional line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

March issue closes February 12th in N. Y.

WE OFFER FOR SALE . . .

20—D & B 40" Cotton Cards . . . $350 each.

2—Portable Lift Trucks
12—C&K 60" looms, model C2, multipliers, leno motions, 25 harness, 4 x 1, motors, etc.
42—Section beams, 54¼" x 28"
2—S.S. tanks 100 & 150 gal.
1—Foster #102 winder, 100 spindles, 50 for paper cones and 50 for tubes.
32—C&K 56" S-3 looms, M.D., W/Dobby
1—P & W 3-blade Shear Complete
1—Barber Colman 56" LL Knotter
1—Knowles, 1953, Drum Type H.S. Dresser W/Creel, 96"
1—Roy Napper Grinder 100"
1—P & W 72" x 36" Semi Decater, 1947
1—Sargent Bagging Machine
12—Waste End Blowers—110v.
2—Collins Fancy Twisters, 200 spdls.
15—Spindles Whitin Schweiter Winder
2—Scutchers 72" and 78" complete

Nash Pumps sizes, 1-2-3-4-5-6
4—Whitin "B" Fancy Twisters, 4" gauge, 200 spindles, M.D.
3—Tolhurst 60" S.S. Extractors
1—Gessner Vacuum Extractor, Folder, 76", Adjustable, M.D.
1—Terrell Bobbin stripper, M.D.
1—HERMAS 4 Blade Vertical Shear complete with Flock System, motors, blower, rolling device, 1948
1—D & F Fearnaught Picker with feed
2—Cloth Numbering Machines
1—Allen Hi-speed Warper, M.D.
1—H & W yarn conditioning oven
2—Hunter Fulling Mills 28E
1—8 Ball Creel
1—Toledo Cloth weighing and measuring scale
2—G.E. Motors, A.C.A. 5-15 H.P.

Large quantity new & used parts for S-3 looms

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ADVANCED TEXTILE COMPANY

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AVAILABLE—MODERN MACHINERY

1—Saco Lowell #12 Opener w/#11 extractor
3—S.L. 3-beater S.P. pickers w/blending rm.
2—S.L. 2-beater S.P. pickers, blending rm.
58—Whitin 40" flat top cards, fancies, 12" coilers
17—S.L. 40" roller top cards
4—Whitin 9¾" slivor lappers, 1946, M.D.
12—Del. Whitin Bi-coil drawing, P2EFS, 1949, 14" coil
36—Det. S.L. 4-roll drawing, 1945, 12" coil
4—S.L. F94, 10 x 5, 6" ga., 100 spindles
5—Woon, 9x4½, interdraft, 96 sp., 7" ga.
10—Frames S-L Z2 spinning, 3¼" ga., 284 sp., M.D.
20—Frames Whitin Model B spinning, 3¼" ga.
4—Toledo Model 1001 Lap scales, 50 lb. & 100 lb.
1—Abbott Model 68 winder, 9"15" paper cones, auto. bog.
2—Univ. #44 Roto Coners, 100 sp, cones & tubes, waxing
1—Foster 102 paper cone winder, waxing & emulsion
1—S-L 7' & 5' cyl. slasher, controls, M.D.
1—Uxbridge Model A Gentle Air slasher
2—Entwistle H.S. warpers w/540 and cocker mag. creels
2—Hi-speed rayon warpers w/600 end mag. creels
10—S-L 4" ga. twisters, 160 sp, ind. M.D.
1—H&W yarn cond., 1956, BT-2, 6' x 8' x 8'
1—Ramcay 4-spool ribbon warper, hydraulic
7—Terrell Bobbin Strippers, L. K. and roving
1—Armstrong Cot Buffing machine
1—1-R 15x11 E51 compressor, w/tank & aftercooler
3—Abbott 12 sp. radial quillers, pinboard
4—Abbott Quillers, 100 and 120 spindle
36—Sp. Whitin Schweiter, auto loader
6—B-C port. warp tying machines, LC, LL, LS, K
2—Fidelity double arm skein winders
16—C&K C-4 Looms, 74", 4x1, 1949
8—C&K W-3 82" looms, 4x1, low roll
10—C&K W-3 80" looms, 4x1, low roll
1—Elliott & Hall folder, 47½" jaw, air lift
1—60 gal. ss. jacketed tank, dish type

MACHINERY SALES CORP.

131 Court Street, P.O. Box 367
New Bedford, Mass. Wyman 9-6273

CIRCLE 401 READER SERVICE CARD

TEXTILE AUXILIARIES INC.

"Specializing in Bleaching, Printing, Dyeing and Finishing Machinery"

1—8 Color R.B. & F. 44" Printing Machine, complete with Backrigging, Dry Cans, D.C. Motor, etc.
1—Van Vlaanderen B.B. 50" Padder, 18" diameter rolls.
1—40" x 60" Straight-Away Pin Tenter with 55' Andrews & Goodrich Housing, 3 Canopies for high temperature.
1 & 2 Roll 54" Winders or Batchers.
1—10 Fan National Loop Dryer, Revolving sticks, 98" wide, late model.
2—50" x 50" Winsor & Jerauld Tenter Frames with P. & S. Insulated Housing, S.S. Top, Opening Chain.
2—50" Morrison B.B. Stainless Steel Dye Jiggs with Tilting Expanders.
1—12' S.S. Dye Beck, Shallow.
Dry Cans—All Widths

We carry spare Padder & Calender Rolls all sizes, also motors from 1 HP to 100 HP.

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Dexter 1-9650 Dexter 1-8837 146 West River Street

PROVIDENCE, R. I.

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LIQUIDATION

of 3 large, complete cotton mills, formerly owned by

CANADIAN COTTONS, LTD.

4—Lummus Opening & Cleaning Lines. 1953.
6—Aldrich Single Process 40" Pickers—1953.
1—Lummus Hyd. Baling Press—1949.
75—Del-S.L. 5 roll Drawing—1947.
20—S. L. Roth Spinning Frames, New Era Spdl. 3½" ga., 240 spdls—1946.
100—Whitin Model F Spinning Frames, 3" ga. 256 & 272 spdls., Casablanca L. D.
1—B. C. Auto. Spooler, 162 pocket, Type C, model KK.
2—Bachman-Uxbridge Air Slashers, 50-85" headway.
1—Cocker Indigo Long Chain Dye Range —1948.
2—Rodney Hunt Stainless Rope Washers, w/pneu squeezers, 1—12', 1—10', 1953.
61—Stainless Steel Dry Cans 48", 30 lb. —1950.
25—Butterworth Stainless Dry Cans 48", 35 lb.—1950.
17—V. V. Stainless Dry Cans 70", 25 lb. —1948
1—Rice, Barton & Fales 4 Color Print Machine 60".
1—Hinnikens 3 roll Pneu. Padder, 60", 12 ton.
20—Draper Model X Looms, 67½" reed —1940
20—Draper Model D Looms, 72½" reed—1935.
25—C & K C2 Looms, 46½" bet. swords, 4 x 1 box.
22—C & K W-3 Convert. Looms, 72", 25 harness—1947.

Exclusive Sales Agent

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TEXTILE EQUIPMENT COMPANY
40 Worth Street, New York 13, N. Y • COrtlandt 7-1391
• APPRAISALS • PURCHASE AND SALE TEXTILE MACHINERY • LIQUIDATION OF MILL PROPERTIES •

CIRCLE 403 READER SERVICE CARD

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2—Abbott Quillers, 120 sp., 1951, Pinboard Attachment
1—Abbott Quiller, 100 sp., 1953
All with auto-bobbin hoists, converters
Whitin Auto. Quillers
Hayes Metal Section Beams
Sipp Vertical Cake Creels
2—Cocker Tricot Warpers with Reiner 600-end Creels
Hermas 62" Shearer
24—C&K, 60", "Big Six", 5-6, 2x1 Dobby
Sipp 84" Hi-speed Warper
New Tricot Opener, tacker

THEODORE BIALEK & CO.

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Longacre 3-4978-9

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COMPLETE PLANTS
INDIVIDUAL ITEMS

Over 30 Years Experience With All Types Of Textile Plants and Equipment.

IT **INTERSTATE TEXTILE EQUIPMENT CO., INC.**

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CIRCLE 405 READER SERVICE CARD

EMPLOYMENT OPPORTUNITIES

(Continued from preceding page)

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INDEX TO ADVERTISERS

An * indicates advertisers who have essential technical information on their products in the **IMPORTANT 1959 FACT FILE**

*Abbott Machine Co., Inc.. 163
Air Reduction Chemical Co. 107
*Alemite Div. Stewart Warner Corp... 130
Allied Chemical Corp. National Aniline Div.... 31
National Aniline Div. Fiber Sls. & Service.. 116
Semet-Solvay Petrochemical Div. 88
Solvay Process Div..... 103
American Moistening Co.. 22
American Schlafhorst Co.. 16
American Textile Machinery Association 149
Anheuser-Busch, Inc. 97
Armstrong Cork Co....26, 27
Ateliers Roannais De Constructions Textile 120

*Bahnson Co.,The..... 46
Barber-Colman Co. Textile Div. 34
Barco Mfg. Co..... 155
Bond Co., Chas..... 150
Bristol Co. 90

Carter Co., A. B..... 123
Chemstrand Corp. 119
Clark Door Co..... 164
*Cocker Machine & Foundry Co. 28

*Davis & Furber Machine Co. 151
Dayton Rubber Co., Textile Div. 44, 45
Deutscher Spinnereimaschinenbau, Ingolstadt .. 25
Diamond Crystal Salt Co.. 94
Draper Corporation 11, 135
Duesberg-Bosson of America, Inc. 167
DuPont de Nemours Co., E. I. *Textile Fibers 114, 115

Eastman Chemical Products, Inc. Chemicals Div. 91

Fairbanks Co., The....20, 154
Fiber Controls Corp..... 48

*Foster Machine Co..... 133
Lindly Div. 38, 39
Foxboro Co. 100

Gates Rubber Co..... 37
Geigy Dyestuff Div. of Geigy Chem. Corp. 79
*General Dyestuff Co. Div. General Aniline & Film Corp. 95, 96
Goodrich Chemical Co., B. F. 43
Goodyear Tire & Rubber Co., Chemical Div..... 15
*Guider Specialty Co..... 156

Hagan Chemicals & Controls Inc. 85
Herr Mfg. Co..... 14
Hungerford & Terry, Inc.. 161

Industrie-Werke-Karlsruhe 145
International Business Machines 24

*Johnson Corp. 164

Kidde Tex. Machy. Corp... 137
Koppers Co., Inc. Chemicals & Dyestuff Div. 99

Laurel Soap Mfg. Co., Inc. 110
Leesona Corp 128, 129
Leighton Machine Co..... 141
Link-Belt Co. 33
*Loper Co., Ralph E..... 166

*Main, Inc., Charles T..... 166
M-B Products 161
McBride Co., Inc., Ed. J.. 166
Metals & Controls Div. Texas Instruments Incorporated 32

Minneapolis-Honeywell .. 102
Morton Salt Co..... 87

National Starch & Chemical Corp. 35
*National Vulcanized Fibre Co. 153
*Lestershire Div. 152
*New Departure Div. General Motors Corp.... 21
Nopco Chemical Co. Textile Div. 86

Paper Converting Mach. Co. 162
*Perfecting Service Co..... 156
*Perkins & Son, B. F..... 98
Pick Mfg. Co..... 167
*Portland Co., The..... 160
Powell Co., Wm. The..... 111

Raybestos-Manhattan, Inc. Manhattan Rubber Div.. 30
Red-Ray Mfg. Co., Inc.... 162
*Robert & Co., Associates .....2nd Cover
Roberts Co. 12, 13
*Rohm & Haas Co..... 83
Royce Chemical Co..4th Cover

Sandoz Inc. 74
Scholler Bros. Inc..... 80
*Scott Testers, Inc..... 112
Signode Steel Strapping Co. 36
*Sirrine Co., J. E..... 160
*Sonoco Products Co..... 82
S. C. State Ports Authority 157
*Staley Mfg. Co., A. E..... 19
Steel Heddle Mfg. Co. .....3rd Cover
*Supreme Knitting Mach. Co. 139

Taylor Stiles Co..... 165
*Tennessee Corp. 110
Terrell Machine Co., Inc.. 16
Textile Hall Corp..... 154
Torrington Co., The (Bearings) 40
Toshin Kogyo Co. Ltd.... 106

Union Carbide Chemical Co., Div. of Union Carbide Corp. 108
Unionmatex Textilmaschinen Union GMBH..... 23
U. S. Rubber Mechanical Goods Div.. 29

*Veeder-Root, Inc. 41

Whitin Machine Works... 125
Woods Sons Co., T. B. 158, 159

CLASSIFIED ADVERTISING
F. J. Eberle, Business Mgr.

EMPLOYMENT OPPORTUNITIES 169, 170

EQUIPMENT (Used or Surplus New) For Sale 169-173

WANTED Equipment 172

ADVERTISERS INDEX

A & M Blank Company..... 172
Advanced Textile Company.... 169
American Air Compressor Corp. 171
Bialek & Co. Theodore..... 170
Fitzgerald, James E..... 171
Industrial Products of America 171
Interstate Textile Eqpt. Co. Inc. 170
Machinery Sales 169
Mar-Day Textiles 172
McDowell Associates 173
Mohawk Valley Knitting Mills.. 173
Pennsylvania Spool & Equipment Co. 172
Perry Equipment Corp..... 173
Rabinowitz & Sons, William.... 171
Republic Textile Corp..... 170
Roberts Company 172
Southern Textile Works..... 173
Stave & Kessler..... 172
Textile Auxiliaries 169
Twindustries Inc. 173
Warren Fabrics Company, Inc.. 169

This index is published as a convenience to the reader. Every care is taken to make it accurate, but Textile World assumes no responsibility for errors or omissions.

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KEY NO. — PAGE

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155 BARCO MFG. CO. 155
Rotary Joints—For complete information write for Catalog 310.

90 BRISTOL CO., THE 90
Pyrometer—Write for complete technical data.

259 CLARK DOOR CO., INC. 164
Prest-O-Matic Doors—Available with Air or Electric Motive Power. Write for catalog.

20 FAIRBANKS CO., THE 20
Casters—Write for Casters & Wheels Catalog for complete specifications and details.

251 FAIRBANKS CO., THE 154
Unions—Write for Descriptive Brochure on Unions and Fittings.

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Flow Meters—Get full details on Magnetic Flow Meters by writing for Bulletin 20-14.

252 GUIDER SPECIALTY CO., THE. 156
Air Guiders—Write for Catalog and Details about complete Guiding Service.

CONTINUED ON NEXT PAGE

ADVERTISEMENTS: INSIDE FRONT COVER INSIDE BACK COVER BACK COVER

1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98
99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154
155	156	157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180	181	182
183	184	185	186	187	188	189	190	191	192	193	194	195	196
231	232	253	254	255	256	257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272	273	274	275	276	277	278
279	280	281	282	283	284	285	286	287	288	289	290	291	292
293	294	295	296	297	298	299	300						

SEARCHLIGHT SECTION

400	401	402	403
404	405	406	407
408	409	410	411
412	413	414	415
416	417	418	419
420	421	422	423
424	425	426	427
428	429	430	431
432	433	434	435
436	437	438	439
440	441	442	443
444	445	446	447
448	449	450	451
452	453	454	455
456	457	458	459
460			

EQUIPMENT AND SUPPLY NEWS:

E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-10	E-11	E-12	E-13	E-14	E-15
E-16	E-17	E-18	E-19	E-20	E-21	E-22	E-23	E-24	E-25	E-26	E-27	E-28	E-29	E-30
E-31	E-32	E-33	E-34	E-35	E-36	E-37	E-38	E-39	E-40	E-41	E-42	E-43	E-44	E-45
E-46	E-47	E-48	E-49	E-50	E-51	E-52	E-53	E-54	E-55	E-56	E-57	E-58	E-59	E-60
E-61	E-62	E-63	E-64	E-65	E-66	E-67	E-68	E-69	E-70	E-71	E-72	E-73	E-74	E-75
E-76	E-77	E-78	E-79											

NEW LITERATURE:

F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10	F-11	F-12	F-13	F-14	F-15
F-16	F-17	F-18	F-19	F-20	F-21	F-22	F-23	F-24	F-25	F-26	F-27	F-28	F-29	F-30
F-31	F-32	F-33	F-34	F-35	F-36	F-37	F-38	F-39	F-40	F-41	F-42	F-43	F-44	F-45
F-46	F-47	F-48	F-49	F-50	F-51	F-52	F-53							

DYES AND CHEMICALS:

D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12	D-13	D-14	D-15
D-16	D-17	D-18	D-19	D-20	D-21	D-22	D-23	D-24						

Name ..... Title .....

Mill .....

Street .....

City ..... State .....

FEBRUARY, 1960 •

ADVERTISEMENTS: INSIDE FRONT COVER INSIDE BACK COVER BACK COVER

1	2	3	4	5	6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	23	24	25	26	27	28
29	30	31	32	33	34	35	36	37	38	39	40	41	42
43	44	45	46	47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96	97	98
99	100	101	102	103	104	105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154
155	156	157	158	159	160	161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176	177	178	179	180	181	182
183	184	185	186	187	188	189	190	191	192	193	194	195	196
231	232	253	254	255	256	257	258	259	260	261	262	263	264
265	266	267	268	269	270	271	272	273	274	275	276	277	278
279	280	281	282	283	284	285	286	287	288	289	290	291	292
293	294	295	296	297	298	299	300						

SEARCHLIGHT SECTION

400	401	402	403
404	405	406	407
408	409	410	411
412	413	414	415
416	417	418	419
420	421	422	423
434	425	426	427
428	429	430	431
432	433	434	435
436	437	438	439
440	441	442	443
444	445	446	447
448	449	450	451
452	453	454	455
456	457	458	459
460			

EQUIPMENT AND SUPPLY NEWS:

E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-10	E-11	E-12	E-13	E-14	E-15
E-16	E-17	E-18	E-19	E-20	E-21	E-22	E-23	E-24	E-25	E-26	E-27	E-28	E-29	E-30
E-31	E-32	E-33	E-34	E-35	E-36	E-37	E-38	E-39	E-40	E-41	E-42	E-43	E-44	E-45
E-46	E-47	E-48	E-49	E-50	E-51	E-52	E-53	E-54	E-55	E-56	E-57	E-58	E-59	E-60
E-61	E-62	E-63	E-64	E-65	E-66	E-67	E-68	E-69	E-70	E-71	E-72	E-73	E-74	E-75
E-76	E-77	E-78	E-79											

NEW LITERATURE:

F-1	F-2	F-3	F-4	F-5	F-6	F-7	F-8	F-9	F-10	F-11	F-12	F-13	F-14	F-15
F-16	F-17	F-18	F-19	F-20	F-21	F-22	F-23	F-24	F-25	F-26	F-27	F-28	F-29	F-30
F-31	F-32	F-33	F-34	F-35	F-36	F-37	F-38	F-39	F-40	F-41	F-42	F-43	F-44	F-45
F-46	F-47	F-48	F-49	F-50	F-51	F-52	F-53							

DYES AND CHEMICALS:

D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12	D-13	D-14	D-15
D-16	D-17	D-18	D-19	D-20	D-21	D-22	D-23	D-24						

Name ..... Title .....

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Street .....

City ..... State .....

FEBRUARY, 1960 • •

KEY NO. PAGE

164 JOHNSON CORP., THE..... 164
Rotary Pressure Joints—Write for Catalog S-3002.

33 LINK-BELT CO. 33
Roller Chains—Write for copy of Book 2657—154 pages of roller chain data.

257 M-B PRODUCTS 161
Pneumatic Roll Picker — For complete information on Model 59 write for literature.

KEY NO. PAGE

87 MORTON SALT CO.—INDUSTRIAL DIV. 87
Salt—Write for information about Chemical Grade "999."

156 PERFECTING SERVICE CO..... 156
Rotary Union—Write for Bulletin 700W. Unitrap—Write for Bulletin 825W.

263 PICK MFG. CO.—DEPT. T.... 167
Water Heaters — For complete details write for Bulletin "Hot Water Everywhere."

KEY NO. PAGE

256 THE PORTLAND CO. 160
Static Eliminators — Write for free Bulletin 79 showing complete line.

112 SCOTT TESTERS, INC..... 112
Testers — For complete details write for technical data sheets on CRE Tester and many other Textile Testers.

103 SOLVAY PROCESS DIV..... 103
Peroxide—Write for brochure on Activated Hydrogen Peroxide Process.

165 TAYLOR-STILES & CO..... 165
Write for the following descriptive folders on Cutters and Bale Breakers.
Staple, Flock Cutters, Folder 217
Bale Breakers.....Folder 215

110 TENNESSEE CORP. 110
Sodium Hydrosulphite — Write for literature and test samples.

159 WOOD'S SONS CO., T. B..... 159
Ultra-V Drives—Write for Bulletin 9102 for complete details.

WOOD'S SONS CO., T. B..... 158
For details write for Bulletins Listed:

253 Variable Speed Drives—
Write for Bulletins 8102, 4101.

254 Card Drive—
Write for Bulletin 6100.

255 Sure-Flex Couplings—
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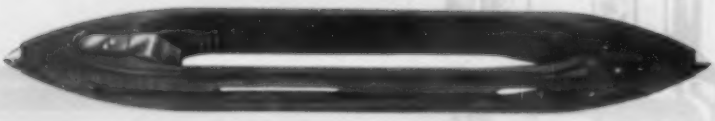

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